



Forth Replacement Crossing

Code of Construction Practice

Revision 5

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List of Abbreviations

<i>BS</i>	British Standard
<i>CIRIA</i>	Construction Industry Research and Information Association
<i>CO₂</i>	Carbon dioxide
<i>CoCP</i>	Code of Construction Practice
<i>DEFRA</i>	Department for Environment, Food and Rural Affairs
<i>EMP</i>	Environmental Management Plan
<i>EMS</i>	Environmental Management System
<i>FEPA</i>	Food and Environment Protection Act 1985
<i>FETA</i>	Forth Estuary Transport Authority
<i>GAEC</i>	Good Agricultural and Environmental Condition
<i>HS</i>	Historic Scotland
<i>HSE</i>	Health and Safety Executive
<i>IBC</i>	Intermediate Bulk Container
<i>ISO</i>	International Standards Organisation
<i>ITS</i>	Intelligent Transport System
<i>kW</i>	kilowatts
<i>mm</i>	millimetre
<i>ms^{-1.75}</i>	Units of measurement for Vibration Dose Value (refer to the definition of Vibration Dose Value in the Glossary)
<i>NO₂</i>	Nitrogen dioxide
<i>OHSAS</i>	Occupational Health and Safety Advisory Services
<i>PAN</i>	Planning Advice Note
<i>PEPFAA</i>	Prevention of Environmental Pollution from Agricultural Activity
<i>PM₁₀</i>	Particulate matter (of 10 micrometers or less)
<i>PPG</i>	Pollution Prevention Guideline
<i>RIAA</i>	Report to Inform an Appropriate Assessment
<i>SAC</i>	Special Area of Conservation
<i>SEERAD</i>	Scottish Executive Environment and Rural Affairs Department (now replaced by the Scottish Government Rural Payments and Inspections Directorate)
<i>SEPA</i>	Scottish Environment Protection Agency
<i>SNH</i>	Scottish Natural Heritage
<i>SPA</i>	Special Protection Area
<i>SSSI</i>	Site of Special Scientific Interest
<i>SUDS</i>	Sustainable Drainage System
<i>TMWG</i>	Traffic Management Working Group
<i>VDV</i>	Vibration Dose Value

Glossary of Terms

<i>'A' Weighting</i>	The human ear does not respond uniformly to different frequencies. The 'A' weighting is commonly used to simulate the frequency responses of the human ear.
<i>Accommodation works</i>	Works undertaken for the benefit of adjacent landowners to accommodate the effect of the scheme on their property. They do not form part of the proposed road and are carried out on land which is adjacent to, but not part of the land required for the project.
<i>Appropriate Assessment</i>	An assessment of likely impacts associated with a development on a European Protected Site. An Appropriate Assessment is required by law under Regulation 48 of the Habitats Regulations (1994), implementing Article 6(3) of the Habitats Directive (92/43/EEC).
<i>Attenuation</i>	Reduction in intensity.
<i>Baseline</i>	The existing conditions which form the basis or start point of the environmental assessment.
<i>Best Practicable Means</i>	A feasible approach having due regard for means/resources/conditions. Defined in the Control of Pollution Act 1974 and Environmental Protection Act 1990 as measures which are 'reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications'.
<i>Bill</i>	For the purposes of this CoCP references to the Bill are references to the Forth Crossing Bill.
<i>Biodiversity</i>	Biological diversity or species richness of living organisms present in representative communities and populations.
<i>Blasting works</i>	Construction activities involving use of explosives.
<i>Bund</i>	An embankment, wall or dam that can be used to reduce noise effects, provide screening or alternatively when built around an oil tank to contain the contents in the event of spillage.
<i>CDM Co-ordinator</i>	The person appointed under Regulation 14(1) of the Construction (Design and Management) Regulations 2007 to perform the duties specified in Regulations 20 and 21 of the 2007 Regulation.
<i>Cetacean</i>	Refers to a group of marine mammals that includes whales, dolphins and porpoises.
<i>Competent Authority</i>	In relation to Appropriate Assessments has the same meaning as in the Conservation (Natural Habitats &c) Regulations 1994 and for the Forth Replacement Crossing is the Scottish Ministers.
<i>Construction Phase Health and Safety Plan</i>	A strategic tool for safeguarding health and safety on a construction site prepared in accordance with the Construction (Design & Management) Regulations 2007.

<i>Contractor</i>	The organisation(s) directly engaged by the Employer (the Scottish Ministers) for the construction of the Project.
<i>Crichel Down Rules</i>	Non-statutory guidance covering the disposal of surplus government owned land.
<i>Culvert</i>	A metal, wooden, plastic, or concrete conduit through which surface water can flow under or across roads.
<i>dB_{ht}</i>	A measurement of underwater sound that provides a metric for estimating the behavioural effects of noise on marine species.
<i>Decibel (dB)</i>	<p>The range of audible sound pressures is approximately 0.00002Pa to 200Pa. Using decibel notation presents this range in a more manageable form.</p> <p>A decibel is not an absolute unit of measurement but is a logarithmic ratio of the variation in pressure. It should be noted that because the decibel scale is a logarithmic ratio, the arithmetic sum of more than one decibel does not equate to the corresponding noise level. For example, the combined noise level generated by adding two equal noise levels together is approximately 3dB higher than the individual noise levels ie 50dB + 50dB = 53dB.</p>
<i>Defects notification period</i>	Also referred to as a maintenance period, this is a period following completion of construction works where the contractor is responsible for remedying any defects that may arise or become apparent in the completed works.
<i>Effect</i>	The result of change or changes on specific environmental resources or receptors.
<i>Emergency services</i>	The police, fire, ambulance and coastguard services.
<i>Employer's Representative</i>	The person named by the Employer (the Scottish Ministers) in the contract who acts on behalf of the Employer.
<i>Energy Saving Trust</i>	An organisation which provides energy saving advice.
<i>Environmental Impact Assessment</i>	The process by which information about the environmental effects of a project is evaluated and mitigation measures are identified.
<i>Environmental Management Plan</i>	Document which describes the processes to be followed to ensure compliance with environmental legislation and policy and minimise harm to the environment.
<i>Environmental Management System</i>	Part of an organisation's management system used to develop and implement its environmental policy and manage its interaction(s) with the environment.
<i>Environmental Statement</i>	Document provided by the Developer to the Competent Authority, containing environmental information required under Article 5 of Directive 85/337/EEC as amended.
<i>False triggering</i>	In respect of exceedence of construction noise thresholds. False triggering is an exceedence which is due to noise generated by sources other than construction activities associated with the Project (see paragraph 5.4.6).

<i>Fauna</i>	Referring to animals of a particular region or habitat.
<i>Flora</i>	Referring to plants of a particular region or habitat.
<i>Groundwater</i>	Water below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
<i>Grouting works</i>	Construction activities to stabilise abandoned mine workings involving drilling and injecting grouts to fill the cavities in the mine workings.
<i>Habitat</i>	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
<i>Haul route</i>	A route used to transport materials through a construction site.
<i>Heavy metals</i>	Any metal with a specific gravity of 5.0 or greater, especially one that is toxic to organisms.
<i>Highest Astronomical Tide</i>	The highest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions
<i>Hydrogeology</i>	The branch of geology that deals with the occurrence, distribution, and effect of ground water.
<i>In situ</i>	In the original or natural place or site.
<i>Intelligent Transport System</i>	Technology based system to manage traffic flow including, for example, information systems, traffic signal control systems, variable message signs, camera and CCTV systems.
<i>Intermediate Bulk Container</i>	A container used for the transport and storage of fluids and bulk materials.
<i>Invasive and Alien Species</i>	Non-indigenous species that heavily colonise and adversely affect the habitats they invade.
$L_{Aeq, T}$	The equivalent continuous sound pressure level measured using the A-weighting which is most sensitive to speech intelligibility frequencies of the human ear having the same energy as a fluctuating sound over a specified time period T.
<i>Listed building</i>	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified as categories A – C(s).
<i>Main roads</i>	Term used to include 'A' and 'B' class local roads.
<i>Method Statement</i>	A document which sets out specific procedures and instructions on how to undertake a work related task.
<i>Mitigation</i>	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
<i>Mitigation measure</i>	Measure implemented to avoid, remedy or alleviate an adverse impact.
<i>Native</i>	A species occurring naturally, in its normal geographic range.
<i>Non-motorised users</i>	Pedestrians, cyclists and equestrians.

<i>Non-reciprocating constructional plant</i>	Construction plant or parts of machinery which do not operate by moving alternately forward and backward.
<i>Oil Interceptor</i>	A device designed to separate oil and suspended solids from waste water effluents including surface water run-off.
<i>Outfall</i>	The place of discharge e.g. where a sewage pipe discharges into a river.
<i>Peak Particle Velocity</i>	The maximum speed of movement of a point in the ground during the passage of a vibration. It is normally expressed in the units millimetres per second.
<i>Pedestrians and other non-motorised users</i>	Traffic and road users being non-motorised users such as pedestrians, cyclists and horse riders.
<i>Permit to Work</i>	Permits are effectively a means of communication between site management, plant supervisors and operators, and those who carry out the work. It is a formal system stating exactly what work is to be done and when, and which parts are safe.
<i>Pile</i>	A heavy stake or post made out of timber, steel, reinforced concrete or pre-tensioned concrete, bored or driven into the ground.
<i>Piling works</i>	The act of installing piles. Construction associated with piled foundations.
<i>Private vehicles</i>	Vehicles not being used for construction purposes. This includes vehicles used by construction staff to travel to the site but excludes those being used during construction works to transport staff to working areas or around the site, such vehicles being used for construction purposes.
<i>the Project</i>	The Forth Replacement Crossing project.

Reasonably practicable

The term “reasonably practicable” is used in situations where the imposition of an absolute duty or obligation is impracticable taking account of factors which may include items such as foreseeability, cost and the limits on the level of control that can be exercised.

In relation to environmental impacts, these can be assessed based on the conditions known (in the case of existing conditions) or likely (in the case of predicted impacts) to exist and mitigation measures can be developed from this. This is the process that has been followed in developing the mitigation measures set out in the Environmental Statement, Reports to Inform an Appropriate Assessment and controls in this Code of Construction Practice. It follows that there is no obstacle to the measures set out in the Environmental Statement being implemented and that these constitute reasonably practicable means. This includes monitoring to ensure the effectiveness, as planned, of the mitigation measures, and that their effectiveness, based on the conditions that are known or likely to exist can be taken to be as described in the Environmental Statement.

In doing everything that is reasonably practicable, the measures taken by the contractor must relate to the contractor’s proposals and not just the measures identified in the Environmental Statement. If it is reasonable and practicable for the contractor to use an alternative method which would result in a lesser environmental impact than that identified in the Environmental Statement, then the contractor has an obligation to do so.

The term “reasonably practicable” recognises that a degree of proportionality is required and is well preceded in previous legislation.

Report to Inform an Appropriate Assessment

An environmental report prepared to provide information to enable an Appropriate Assessment to be undertaken.

Residual Environmental Impact

The impact that would remain following implementation of mitigation measures to reduce an environmental impact.

Road Safety Audit

An evaluation of road schemes to identify potential road safety problems that may affect any road users and to suggest measures to eliminate or reduce those problems.

Run-off

Water that flows over the ground surface to the drainage system. This occurs if the ground is impermeable or if permeable ground is saturated.

Scheduled Ancient Monument

A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the ‘Ancient Monuments and Archaeological Areas Act 1979’.

Sediment

Material carried in particles by water or wind and deposited on the land surface or seabed.

Site Investigation

Survey, including intrusive survey, to obtain information on the physical properties of soil and rock.

<i>Soakaway</i>	A deep hole used for drainage, where rainwater and other waste water drains directly into the ground, without connection to any mains drainage or sewerage pipes.
<i>Statutory Nuisance</i>	Those matters covered by Section 79 of the Environmental Protection Act 1990.
<i>Statutory Undertaker</i>	Defined in legislation, the term generally refers to supplier of utilities such as water, sewerage, electricity, gas and communications.
<i>Sustainable Drainage System</i>	A sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.
<i>Traffic or road users</i>	Defined in the Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations. "Traffic" and "road users" shall be taken to include both motorised and non-motorised users such as pedestrians, cyclists and horse riders.
<i>Trunk road</i>	A road which is the responsibility of the Scottish Ministers.
<i>Vibration Dose Value</i>	A measure of impulsive vibration related to the frequency, acceleration and duration of the vibration.

1 Introduction

1.1 The Forth Replacement Crossing Project

1.1.1 The Forth Replacement Crossing project ('the Project') will provide a replacement crossing of the Firth of Forth to the west of the Forth Road Bridge to carry general road traffic. As part of a managed crossing scheme the Forth Road Bridge will continue to operate, carrying public transport, taxis, motorcycles with engine capacity less than 50cc, pedestrians and cyclists.

1.1.2 The Project has been designed to:

- facilitate future multi-modal use utilising the Forth Road Bridge;
- provide for pedestrians and cyclists;
- provide for two lanes in each direction for all-purpose road traffic;
- incorporate hard shoulders to relieve disruption due to breakdowns and maintenance activity;
- provide improved accessibility to West Lothian through the addition of west-facing slip roads at Junction 1a on the M9; and
- improve accessibility to the development areas of Fife through an enhanced Ferrytoll junction.

1.1.3 In addition to the replacement crossing (hereafter referred to as the 'main crossing'), the Project includes new dual carriageway approach roads to the main crossing and the existing junction at Ferrytoll will be enhanced to protect and promote the developing area of Rosyth and to provide good quality connections for local communities. A new junction will be provided at South Queensferry and Junction 1a on the M9 will be enhanced to facilitate new access to and from the bridge from West Lothian. The M9 will be improved between Newbridge and Junction 1a. An Intelligent Transport System (ITS) will be provided along the full length of the Project including the M9 Kirkliston Spur and M90 between Admiralty Junction and Halbeath Interchange. The proposed scheme is shown in Figure 1.1 overleaf.

1.1.4 Construction of the Project may be undertaken as a single contract or under a number of individual contracts. The Scottish Ministers may vary the construction strategy, however at the time of writing this Code of Construction Practice the strategy is anticipated to comprise:

- a main contract involving construction of the main crossing and the connecting roads to the north and south of the bridge;
- a contract for the improvements to the M9 and Junction 1a; and
- a contract for the provision of ITS measures to the north of Admiralty Junction on the M90.

1.1.5 The contractors involved in construction of the Project will comply with the Code of Construction Practice insofar as it is relevant to the construction works set out in the relevant contract. This Code of Construction Practice will apply for the duration of the construction contracts, including any maintenance or defects notification period.

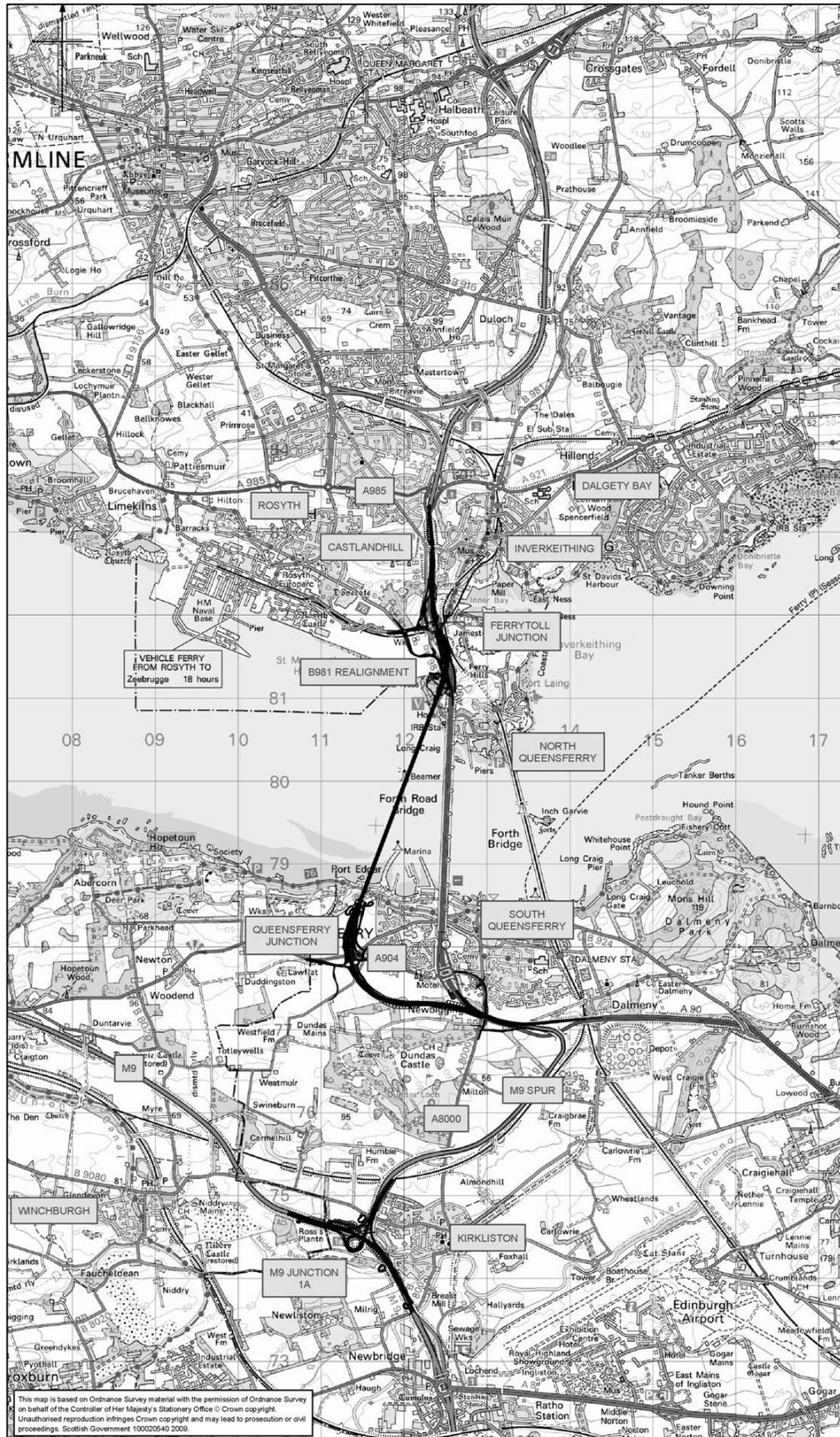


Figure 1.1 Proposed Scheme

1.2 Purpose of this Code of Construction Practice

- 1.2.1 This Code of Construction Practice (CoCP) has been prepared in accordance with paragraphs 2.35 and 2.36 of the Scottish Parliament Hybrid Bill Guidance. In accordance with the guidance, this CoCP:
- sets out the actions the contractors are required to take during the construction phase of the project to minimise environmental and other impacts;
 - defines the minimum standards of construction practice required of the contractors; and
 - defines how those affected will be informed of how such impacts will be mitigated and how they will be consulted and engaged over such mitigation and of the timetable for the construction works.
- 1.2.2 The actions and standards include arrangements for the management, design and construction of the Project to control the material impact of construction insofar as it may affect the natural environment and the environment, amenity and safety of local residents, businesses and the public in the vicinity of the construction works. In addition to those that will be affected by construction of the Project, this CoCP also explains how the public and other stakeholders will be consulted during construction of the Project.
- 1.2.3 Revisions to this CoCP may be undertaken if requested by the Parliament during the Parliamentary process in response to issues raised during that process. Any changes will be incorporated within a finalised CoCP. The CoCP will be included within the contract documents for the construction of the Project. The contractor will have a contractual obligation to comply with the requirements set out in the CoCP.
- 1.2.4 The Scottish Ministers have a duty to do everything which is reasonably practicable to ensure that the Project is constructed in accordance with this CoCP. The Scottish Ministers will ensure compliance with this CoCP through the construction contracts. In line with the requirements of the Forth Crossing Bill, the contractor will do everything which is reasonably practicable to construct the Project in accordance with this CoCP, including implementing appropriate best practice mitigation measures in line with the requirements of the Environmental Statement and Reports to Inform an Appropriate Assessment referred to in Section 1.9 of this CoCP. In undertaking the construction works in accordance with this paragraph, the contractor will be carrying out the works on behalf of the Scottish Ministers in accordance with their powers and duties under the Forth Crossing Bill. Please also refer to Section 1.8 regarding construction supervision.
- 1.2.5 This CoCP refers to a number of documents that the contractor will develop to set out in detail the management systems, procedures, approaches and methodologies that will be implemented during construction of the Project to comply with this CoCP. This includes:
- Construction Phase Health and Safety Plan;
 - Environmental Management Plan which will include a number of subsidiary plans;
 - other management plans; and
 - Method Statements.

- 1.2.6 The Scottish Ministers have consulted with statutory bodies and other organisations during the development of this CoCP. As explained in Section 1.5 of this CoCP, the contractor will consult with relevant bodies in the development of the Environmental Management Plan, subsidiary management plans and other management plans.

1.3 The Parliamentary Bill

- 1.3.1 The Project is being promoted by the Scottish Ministers by a Parliamentary Bill titled the “Forth Crossing Bill”. Part of the Bill deals with environmental issues including the requirement to mitigate environmental impacts and also the requirement to meet the minimum standards of mitigation and protection provided for in the Environmental Statement and this CoCP.

- 1.3.2 As explained in paragraph 1.2.3, this CoCP will be considered by the Parliament and may be amended during the parliamentary process before the Parliament confirms it is content to pass the Bill.

1.4 Environmental Management System

- 1.4.1 The contractor will be required to operate a quality system, part of which will be an Environmental Management System (EMS) complying with BS EN ISO 14001: Environmental Management. The EMS will set out:

- the contractor’s environmental policy;
- the procedures to be implemented to monitor compliance with environmental legislation; and
- the procedures to be implemented to monitor compliance with the environmental provisions in the Forth Crossing Bill and in this CoCP.

- 1.4.2 The contractor will demonstrate to the Employer’s Representative that an EMS complying with BS EN ISO 14001: Environmental Management is in place prior to construction works commencing.

1.5 Environmental Management Plan

- 1.5.1 This CoCP requires the contractor to prepare and implement an Environmental Management Plan (EMP). The EMP will set out how the contractor intends to operate the construction site and will set out the specific control measures to be implemented to comply with the EMS and this CoCP. The contractor will not be permitted to commence construction works until the EMP is accepted by the Employer’s Representative.

- 1.5.2 The EMP will include specific management plans, including, but not limited to the following:

- Area Management Plan (see Section 3 of this CoCP) – this will be an overarching site management plan covering general site operations and overall management of the construction works. It will include details of the key personnel employed in the management of the project, controls with regard to general site layout and operations, and lighting including measures to mitigate light pollution, screening and working hours.

- Noise and Vibration Management Plan (see Section 5 of this CoCP) – to include details of measures to control and mitigate noise and vibration during construction together with details regarding monitoring systems to be employed during the construction works.
- Dust and Air Pollution Management Plan (see Section 6 of this CoCP) – to include details of dust and air pollution control measures with details regarding monitoring systems to be used during the construction works.
- Geology, Land Contamination and Waste Management Plan (See Sections 7 and 8 of this CoCP) – to include details of measures required when working in abandoned shallow mine working areas, for the handling, storage, transfer and disposal of waste materials and contaminated materials as well as measures to be implemented for the reuse or recycling of waste material.
- Surface and Ground Water Management Plan (See Section 9 of this CoCP) – to include details of controls to prevent contamination of surface and ground water resources, together with monitoring systems to be employed during the construction works and emergency procedures to be implemented in the case of any pollution incidents.
- Ecological Management Plan (see Section 10 of this CoCP) – to include details of procedures to be followed to mitigate environmental impacts on ecological resources, flora and fauna.
- Agriculture Management Plan (see Section 11 of this CoCP) – to include details of controls to be implemented to mitigate potential impacts on farms including maintaining access.
- Cultural Heritage Management Plan (see Section 12 of this CoCP) – to include details of measures to be implemented during topsoil stripping and excavations to enable potential cultural heritage resources to be identified and recorded, as well as controls to be put in place to protect cultural heritage resources adjacent to the construction works.
- Landscape Management Plan (see Section 13 of this CoCP) – to include details of controls to protect the landscape from construction activities together with measures to be implemented to manage and maintain landscape works provided as part of the project. Measures to be implemented to mitigate visual impacts from the construction works will also be described.
- Pollution Incident Response Plan (see Section 14 of this CoCP) – to include details of controls to be adopted to manage the risk of pollution incidents and procedures to be followed in the event of any pollution incidents.

1.5.3 The following other management plans will be prepared by the contractor:

- Traffic Management Plan (see Section 4 of this CoCP) – to include details of traffic control measures, site access points, access for non-motorised users (e.g. cyclists and pedestrians), public roads that will be used during construction and control of construction traffic together with advertising and notification procedures regarding planned roadworks.
- Marine Traffic Management Plan (see Section 4 of this CoCP) – to include details of the procedures to be implemented to manage construction works and operate according to procedures agreed with the relevant navigation and harbour authorities taking account of any mitigation required in the appropriate assessment.

- 1.5.4 The EMP, its subsidiary plans and other management plans will be live documents that are subject to updating and refinement by the contractor as required in response to the changing needs of the works during construction.
- 1.5.5 The EMP will set out the contractor's arrangements to provide supervisory and site personnel with adequate training relevant to their role prior to being employed on the construction site, including specific environmental project inductions.
- 1.5.6 The EMP will include details of those responsible for the effective implementation of the plan and will also set out the procedures to be implemented to monitor compliance with the plan during construction.
- 1.5.7 The contractor will consult with and take consideration of the views of the following local authorities and statutory bodies during development of the EMP:
- The City of Edinburgh Council, Fife Council and West Lothian Council.
 - Scottish Natural Heritage (SNH).
 - Marine Scotland.
 - Scottish Environment Protection Agency (SEPA).
 - Historic Scotland.
- 1.5.8 The contractor will seek the advice of the local authorities and other statutory bodies regarding the measures set out in the various plans prior to the plans being finalised to enable the plans to be completed in the knowledge that these bodies are satisfied with the measures proposed. Any views expressed by the bodies specified during the consultation will be fully considered and appropriate measures reflected in the Environmental Management Plan and its subsidiary plans accordingly.
- 1.5.9 The purpose of the consultation on the EMP is to enable those organisations to input to, and advise the contractor regarding the adequacy of the measures in the EMP which will be implemented during construction. This includes the adequacy of the processes and controls to be implemented by the contractor. The contractor will seek to develop a positive working relationship with the local authorities, statutory bodies and other stakeholders so they may have confidence, and be assured, that the construction works are being undertaken in accordance with this CoCP, the Environmental Statement and RIAAs.
- 1.5.10 The EMP, its subsidiary plans and other management plans will include details of the arrangements for consultation with those bodies listed in paragraph 1.5.7 above during the planning and execution of construction works.
- 1.5.11 The EMP, its subsidiary plans and other management plans referred to in this CoCP will be made available on the information website described in paragraph 2.3.1 of this CoCP.
- 1.5.12 Community groups will, through the consultation forum referred to in paragraph 2.2.4 of this CoCP, be able to comment on EMP, its subsidiary plans and other management plans. In line with the requirements of paragraph 2.2.7 of this CoCP, any comments will be considered and addressed as appropriate.

1.6 Sustainable Development Policy

- 1.6.1 The Scottish Ministers have prepared a Sustainable Development Policy which sets out the sustainability objectives for the Project.
- 1.6.2 As part of this Policy a project specific sustainability assessment methodology was developed. An important aspect of this policy is to ensure that measures are in place to improve environmental performance in the design, construction and operation of the Project.
- 1.6.3 In the adoption of this proactive approach to sustainable design and construction the contractor will be required to seek to maximise resource efficiency through reducing the amount of waste generated, minimising water consumption and making the most efficient use of energy. There will also be a requirement for the contractor to reduce the carbon footprint of the scheme during construction by reducing CO₂ emissions where possible through for example promoting the use of materials from renewable resources and keeping construction vehicle movements to the minimum necessary.
- 1.6.4 Other important features of adopting this sustainable approach will include promotion by the contractor of the protection, and where appropriate, the enhancement of the natural heritage (in particular biodiversity) and historic environment. There will also be a requirement for the contractor to seek, where necessary, to mitigate adverse environmental impacts, such as from noise and severance on local communities.
- 1.6.5 This overall approach to sustainability implemented by the contractor should result in improvements in whole life performance of the project.

1.7 Method Statements

- 1.7.1 The contractor will set out the procedure to be followed for each construction operation in a method statement. Method statements will be prepared for site preparation, construction activities and reinstatement of land following completion of the main construction works.
- 1.7.2 Method statements will set out the step by step process to be followed including establishing appropriate 'hold points' so that works progress with the necessary supervisory controls and approvals being in place. The method statements will define any specific environmental control measures to be implemented to meet the requirements of the EMP. Where environmental control measures are specified, appropriate hold points will be defined to enable the measures to be checked and approved by the relevant supervisory personnel prior to works commencing.
- 1.7.3 The method statements will also clearly set out the safe methods of working and other criteria determined by the health and safety risk assessment for the task. Where appropriate they will reference Permits to Work or other authorisations. The construction team carrying out the work will be briefed on these requirements in advance of the operation.

1.8 Construction Supervision

- 1.8.1 The Scottish Ministers will provide appropriately qualified staff to monitor the contractor's compliance with the construction contract and this CoCP in line with the responsibilities set out in paragraph 1.2.4. The Scottish Ministers' lead

representative during construction of the Project will be called the 'Employer's Representative'.

- 1.8.2 The Employer's Representative will act on behalf of the Scottish Ministers in the construction contracts and his role will include ensuring that the contractor fulfils its obligations under the contract, including complying with the Environmental Statement and this CoCP.
- 1.8.3 The Employer's Representative will be supported by a site-based team who will monitor the works being undertaken, including the provision and maintenance of mitigation measures, and the impact of construction works. The Employer's Representative will undertake this monitoring as part of the measures employed to assist the Scottish Ministers fulfil their obligations to ensure that the works are carried out in accordance with the Environmental Statement, this CoCP and the construction contract. In addition to undertaking independent monitoring, the Scottish Ministers' team will have full access to the contractor's monitoring records to assist them execute their responsibilities.
- 1.8.4 As explained in paragraph 1.2.4 of this CoCP, the Scottish Ministers will be able to take action as may be necessary through the construction contracts to ensure that the construction works are undertaken in accordance with the Environmental Statement, Reports to Inform an Appropriate Assessment, this CoCP and the construction contract. The Employer's Representative will use information from the monitoring of construction works to assist him in making any determinations regarding actions that need to be taken.
- 1.8.5 The contractor will employ sufficient suitably qualified and experienced personnel to supervise construction works, including personnel with relevant experience in the environmental disciplines included within the Environmental Statement and this CoCP.
- 1.8.6 The contractor will undertake monitoring as may be necessary to comply with the requirements of this CoCP, including monitoring the effectiveness of mitigation measures and monitoring and the impact of construction works, and taking other actions as may be necessary to enable compliance with the requirements of this CoCP, the Environmental Statement and RIAAs to be demonstrated.
- 1.8.7 In addition, where appropriate, the different sections of this CoCP set out requirements for monitoring to:
- inform the application of appropriate mitigation measures as part of the measures to ensure, as far as is reasonably practicable, that residual environmental impacts are not worse than those set out in the Environmental Statement and other environmental assessment reports;
 - monitor and assess the effectiveness of mitigation measures; and
 - enable compliance with the requirements of this CoCP to be demonstrated.
- 1.8.8 In undertaking the consultations with the local authorities and statutory bodies required by paragraph 1.5.7 of this CoCP, the contractor will ensure that the adequacy of monitoring proposals is discussed. Any additional monitoring that these, or other relevant bodies wish to undertake as part of their duties will be accommodated.
- 1.8.9 Local authorities and other regulatory bodies will retain the ability to take action in accordance with their statutory powers under existing legislation to control issues

such as unacceptable levels of pollution e.g. through serving notice under the Control of Pollution Act 1974 or Environmental Protection Act 1990 in relation to noise and vibration.

- 1.8.10 The contractor will make monitoring records available to the Employer's Representative, local authorities and to others identified in paragraph 1.5.7 of this CoCP.
- 1.8.11 Monitoring records will be made available on the information website described in paragraph 2.3.1 of this CoCP.

1.9 Compliance with the Environmental Statement and Appropriate Assessments

- 1.9.1 An environmental impact assessment (EIA) has been undertaken for the Project and an Environmental Statement has been prepared in accordance with the Environmental Impact Assessment (Scotland) Regulations 1999, as amended. In line with the requirements of these regulations, the Environmental Statement includes assessments of the potential impacts, including cumulative impacts, on the environment that may be caused during construction of the Project and describes proposed mitigation measures.
- 1.9.2 The approaches to be adopted by the contractor to mitigate environmental impacts, including cumulative impacts, during construction of the Project are included within this CoCP. Additional details of the mitigation measures proposed are described in the Environmental Statement. Potential environmental impacts and mitigation are described in Chapters 7 – 24 of the Environmental Statement. Chapter 21 of the Environmental Statement covers potential cumulative impacts and Chapter 23 of the Environmental Statement comprises a Schedule of Environmental Commitments which summarises the mitigation measures identified in the Environmental Statement, which are considered necessary to protect the environment, prior to construction, during construction and/or during operation of the proposed scheme.
- 1.9.3 The Scottish Ministers have a duty to do everything which is reasonably practicable to ensure that the residual environmental impacts of the construction and operation of the Project are not worse than those described in the Environmental Statement. In line with this duty, the contractor comply with paragraph 1.2.4 above and will have to provide the mitigation measures described in the Environmental Statement, or any other appropriate or equivalent mitigation measures, such that the residual environmental impacts during construction and operation of the Project are not worse than those described in the Environmental Statement.
- 1.9.4 If, during or following construction of the scheme, impacts due to its construction are found to be greater than the residual environmental impacts identified in the Environmental Statement, additional mitigation may be provided. The Scottish Ministers will consider representations made that construction works are not being undertaken in accordance with this CoCP or that environmental impacts greater than the residual environmental impacts identified in the Environmental Statement are occurring and take appropriate actions as part of their obligations under this section and in accordance with the Bill.
- 1.9.5 An additional environmental assessment process is being followed for the Firth of Forth Special Protection Area (SPA), the Forth Islands SPA, The Imperial Dock Lock, Leith SPA (Leith Docks SPA), and the River Teith Special Area of Conservation (SAC). Reports to Inform an Appropriate Assessment (RIAA) of the

potential for impacts on these sites have been prepared in accordance with the requirements of the Conservation (Natural Habitats, &c.) Regulations 1994, as amended.

- 1.9.6 The RIAAs set out in greater detail specific mitigation measures and environmental management requirements for those aspects of construction which have the potential to adversely affect the SPAs and SAC. The contractor will comply with the mitigation requirements of the Appropriate Assessments made by the Competent Authority (informed by the RIAAs). Any changes to the scheme assessed in the RIAAs will require consideration by the Competent Authority and the contractor would be required to adhere to any other conditions or restrictions imposed by the Competent Authority in relation to Appropriate Assessments carried out for the Project insofar as they relate to these sites.

1.10 Compliance with Legislation, Standards and Guidance

- 1.10.1 In addition to the Bill and the EIA documentation referred to above, there are many other statutes including Acts of Parliament and regulations which cover environmental and related matters. The requirements set out in legislation are complemented by additional standards, such as British (BS) or International (ISO) Standards and other guidance including industry codes of practice. Reference to any legislative provision, standard or guidance will be deemed to include any subsequent re-enactment, amending provision or replacement thereof current at the time of construction in accordance with the contract requirements.
- 1.10.2 Where applicable, references to specific legislation, standards and guidance are included within each section of this CoCP. Where text in this CoCP paraphrases or interprets the wording of other legislation, standards and guidance, the wording of the original documentation will apply. Notwithstanding these references, compliance with this CoCP will not absolve the contractor from compliance with all legislative requirements relating to the manner of the execution of the works applicable at the time of construction.

1.11 Involvement of Local Authorities and Other Statutory Bodies

- 1.11.1 As explained in Sections 1.5 and 1.8 of this CoCP, the local authorities and other statutory bodies will be involved throughout the construction of the project, including the planning, review of ongoing construction and monitoring. In addition to providing the assurance described in paragraphs 1.5.8 and 1.5.9 above, this involvement will seek to facilitate the local authorities and other statutory bodies in their duties as regulatory bodies.
- 1.11.2 In particular, this CoCP makes reference to the following structured forums which will form part of the involvement of, and consultation with, these organisations during construction:
- A Traffic Management Working Group (refer to Section 4 of this CoCP) will be consulted by the contractor regarding the proposals to limit disruption to the road network. This group includes representatives from trunk and local road authorities and the emergency services.
 - A Marine Liaison Group (refer to Section 4 of this CoCP) will be formed and consulted by the contractor regarding the proposals to manage construction activities within the Firth of Forth and limit disruption to navigation. This group

will include representatives from the navigation and harbour authorities, the operator of Rosyth Dockyard and the emergency services.

- A Noise Liaison Group will be formed (refer to Section 5 of this CoCP) to provide oversight of all aspects of noise planning, control during construction and monitoring. The group will include representatives from each of the relevant local authorities and Scottish Natural Heritage.
- An environmental liaison group will be formed and will be consulted regarding all other environmental matters defined in this CoCP. This group will include representatives from the local authorities, Scottish Natural Heritage, the Scottish Environment Protection Agency, Marine Scotland and Historic Scotland.

1.11.3 In addition, the contractor will consult with these organisations as construction work progresses. The arrangements for this consultation will be developed in accordance with the requirements of paragraphs 1.5.7 – 1.5.10 of this CoCP.

1.11.4 Community groups will, through the consultation forum referred to in paragraph 2.2.4 of this CoCP, be able to suggest matters to be considered by the above groups.

1.11.5 Agendas and minutes of meetings for the above groups will be published on the information website described in paragraph 2.3.1 of this CoCP.

1.12 Structure of this Code of Construction Practice

1.12.1 This CoCP is structured as follows:

- Section 2 sets out measures relating to community engagement and public information, including engaging proactively with the public, notification regarding construction works and dealing with enquiries and complaints.
- Section 3 sets out measures for general site operations including site safety, site organisation and appearance and working hours.
- Section 4 sets out measures relating to public access including traffic safety and management, control of construction traffic, maintaining access and operating within the Firth of Forth.
- Sections 5 – 14 set out measures to maintain satisfactory levels of environmental protection and limit disturbance from construction activities as far as reasonably practicable relating to:
 - Noise and vibration
 - Dust and air pollution
 - Geology, soils and land affected by contamination
 - Disposal of waste and contaminated materials
 - Protection of the water environment
 - Ecology
 - Agricultural resources
 - Archaeology and cultural heritage
 - Landscape and visual impact
 - Pollution incident control and response planning

- 1.12.2 Where lists are provided in this CoCP, these are not to be considered as fully exhaustive lists, unless stated accordingly.

2 Community Engagement and Public Information

2.1 Objective

- 2.1.1 To engage proactively and constructively with local communities during the construction of the project, deal effectively with enquiries and complaints and provide information regarding the construction of the Project including works which may affect the public, in a timely manner.

2.2 Engaging with Communities

- 2.2.1 Transport Scotland developed a community engagement strategy entitled '*Engaging with Communities*' which has been implemented during development of the Project. This included commitment to a range of measures and activities to inform, engage and consult the public in the development of the Project.

- 2.2.2 Transport Scotland's ongoing communications strategy for the project will reflect the construction stage of the Project and will include details of the procedures to be implemented to:

- maintain effective community engagement throughout the construction period to build on existing relationships with the communities alongside the scheme;
- consult with and inform affected communities in advance of the relevant construction works commencing about how the effects of construction activities will be mitigated;
- consult with and inform affected communities in advance of the relevant construction works commencing about the timetable of the construction works;
- provide information on the enquiry and complaints procedures; and
- meet the other requirements of this CoCP regarding community engagement.

- 2.2.3 Transport Scotland will prepare an updated '*Engaging with Communities*' brochure for the construction stage of the Project which will provide information regarding how construction works will be monitored, how compliance with the Code of Construction Practice will be enforced and a step-by-step guide to the enquiries and complaints procedure described in Section 2.4 of this CoCP.

- 2.2.4 The communications strategy will be in accordance with the National Standards for Community Engagement. The strategy will include regular community engagement through established community groups. To ensure effective community engagement, a forum will be set up with each community council for consultation during the construction stages. This will include, but not be limited to:

- Kirkliston Community Council;
- Queensferry and District Community Council;
- Newton Community Council;
- North Queensferry Community Council;
- Rosyth Community Council; and
- Inverkeithing Community Council.

- 2.2.5 The Scottish Ministers will discuss and agree the format and agenda with the community groups to allow the forum to be set up and the engagement to commence in advance of construction works commencing. The consultation will be attended by the Employer's Representative and the Community Liaison Officer, together with key members of the contractor's site team as may be necessary to cover the matters to be discussed.
- 2.2.6 Community forum meetings will be held at least quarterly during the construction period following the setting up and establishment of the community forums prior to the commencement of construction works.
- 2.2.7 A focus of the engagement will be to share information, enable the community groups to advise of concerns so these may be considered and addressed as appropriate and, through constructive consultation, minimise complaints and ensure that any complaints are dealt with efficiently and effectively. Information regarding the measures proposed to mitigate the effects of construction activities, including the measures which will be set out in the Environmental Management Plan and subsidiary plans (and any revised versions), will be provided to allow informed and timely consultation on these measures and the opportunity for review and comment prior to their acceptance by the Employer's Representative and their subsequent adoption and implementation.
- 2.2.8 The communications strategy will reflect the ongoing needs of the project and will not be restricted solely to engagement through the forum. The Scottish Ministers and the contractor will be proactive in identifying opportunities for additional consultation if this is necessary to comply with paragraph 2.2.2 above. It is expected that the public and community groups will also take a positive and proactive approach to engaging with the Scottish Ministers and the contractor. The Scottish Ministers will review the communications strategy regularly and also take consideration of the views of the community groups through the forum regarding the effectiveness of the community engagement. If necessary, the approach and strategy will be adapted during the construction period.
- 2.2.9 The contractor will contribute to and support the implementation of effective communications and fulfilment of the above objectives. The contractor will appoint a community liaison officer and liaison team who will be responsible for community engagement for the contracting organisation.
- 2.2.10 The contractor will liaise with:
- local authorities;
 - other statutory bodies and regulatory authorities;
 - the emergency services;
 - other relevant organisations as set out in this CoCP;
 - community councils and relevant established community groups;
 - businesses and relevant established business groups; and
 - residents in local communities affected by the works

on matters relating to the construction of the scheme to meet the requirements set out in this CoCP.

- 2.2.11 The contractor will also support Transport Scotland in promoting awareness of the Project as part of a wider community engagement strategy through, for example, presentations to educational establishments such as local schools, centres for further education and industry institutions.

2.3 Community Engagement Requirements

- 2.3.1 During construction, a programme of high quality, effective and sustained communications will include:

- Information website – Transport Scotland’s project website will be updated to reflect construction and community liaison requirements. It will provide up to date information on the progress of the construction works, current areas affected by construction, mitigation in place to reduce adverse effects of construction, information regarding planned construction works and works recently completed. The Scottish Ministers will consider any views expressed regarding the content of the website to ensure it provides information which communities and residents find informative and valuable. The various plans referred to in this CoCP and monitoring records will be made available on the website.
- Project briefings and site visits – where reasonable, project briefings and site visits will be provided for groups arranging to visit the construction site. The contractor will contribute to and support project briefings and site visits. Transport Scotland’s project website will provide details of the procedure for arranging project briefings and site visits.
- Newsletter – the project newsletter will be issued by Transport Scotland on a regular basis and will provide information regarding construction progress and planned construction works. The contractor will contribute to and support preparation of the project newsletter. The newsletter will include details of areas that will be affected by construction works; provide information regarding traffic management that will be in place affecting existing roads, cycle tracks and other paths; and will include details of the enquiries and complaints procedure to be implemented in accordance with the requirements below. The Scottish Ministers will consider any views expressed regarding the content of the newsletter to ensure it provides information which communities and residents find informative and valuable. The newsletter will be distributed to established mailing lists and published on the project website. In addition, the newsletter will be issued to local authorities, other statutory bodies, other relevant organisations referred to in this CoCP, the emergency services, community councils, other interested parties and local libraries.
- Provision of information on progress of construction works – the contractor will support Transport Scotland in keeping relevant local authorities, community councils, councillors, constituency and regional MSPs and other relevant persons informed of the progress and effects of construction works.
- Notification to local residents, businesses and community councils – the contractor will notify occupiers of nearby properties, businesses and adjacent or affected community councils a minimum of two weeks in advance of the nature and anticipated duration of planned construction works that may affect them, including both principal and ancillary works. As a minimum, the contractor will take steps including direct correspondence and/or mail drops, together with providing information in local community centres. The notification will also provide details of the enquiries and complaints procedure

developed in accordance with the requirements below. Information included in the notifications will include, as appropriate:

- The location of the planned works.
 - The type of planned works which are anticipated to give rise to effects on adjacent residents.
 - The duration of the planned works and the periods within which works will be undertaken (i.e. whether during normal working hours, during the evening or overnight).
 - The anticipated effects of the planned works.
 - The measures to be implemented in line with the Environmental Statement and this CoCP to mitigate the impact of the planned works.
- Enquiries and Complaints Procedure – as described in Section 2.4 of this CoCP.

2.4 Enquiries and Complaints Procedure

2.4.1 The contractor will establish a system and procedure for dealing with enquiries and complaints from the public. The system and procedure will include setting up dedicated free-phone telephone hotline and fax numbers together with a dedicated email address and postal address for enquiries and complaints. The hotline will be staffed by personnel from the contractor's community liaison team 24 hours a day. The relevant contact numbers, email and postal addresses for the enquiries and complaints system will be displayed on signs around the construction site and will be published on the website and newsletters.

2.4.2 The system and procedure will ensure that enquiries and complaints are responded to urgently, efficiently and effectively, including:

- logging enquiries and complaints in a register as soon as they are received;
- ensuring that enquiries and complaints are dealt with sensitively and appropriately, recognising that they may be due to the effect of construction works on the interests of, and impacts on persons and their properties;
- ensuring that if the enquiry or complaint cannot be addressed by the person recording it, that it is passed to the correct person for review and appropriate action;
- taking appropriate action in response to any enquiries or complaints; and
- providing a response to any enquiries or complaints (see paragraphs 2.4.4 and 2.4.5 below).

2.4.3 The Employer's Representative will review enquiries and complaints regularly to ensure the adequacy, efficiency and effectiveness of the enquiries and complaints system and procedure and the measures being taken to respond to any enquiries or complaints.

2.4.4 The extent of the action taken will depend on the nature of the complaint. All complaints will be investigated to establish the cause of the complaint and whether the works comply with the Environmental Statement, CoCP and other relevant requirements such as legislation, standards and codes of practice. The investigations will also consider whether the effects which give rise to a complaint

are unavoidable consequences despite the works being undertaken in accordance with these documents and requirements or whether they are avoidable. Where measures or actions in accordance with these documents and requirements can be provided or taken to resolve complaints this will be done. The contractor will contact complainants within 48 hours of their complaint to advise them of progress being made in addressing the complaint and then again following completion of any actions taken to resolve the complaint.

- 2.4.5 If the contractor does not consider it can take actions to resolve a complaint, it will refer to the complaint to the Employer's Representative who will consider the complaint and determine if any actions can be taken. If a complaint is not resolved within 48 hours, the contractor will provide a weekly update to the complainant of any actions taken to resolve the complaint. If it is not possible to resolve the complaint, an explanation of why this is the case will be provided to the complainant.
- 2.4.6 Complaints regarding noise (including vibration), dust or air pollution and traffic management and actions taken to resolve the complaints will be reviewed by the Noise Liaison Group, environmental liaison group and Traffic Management Working Group, respectively. Other complaints will be reviewed by the appropriate working group set out in Section 1.11 of this CoCP, as appropriate.
- 2.4.7 The contractor will make appropriate information from the register available to local authorities. This may include, depending on the requirements of the local authority, both summary and detailed information regarding:
- The number of enquiries and complaints (including a monthly summary).
 - The geographic area from where the enquiries and complaints originated.
 - The topics of enquiries and complaints.
 - The measures taken to investigate, deal with or address enquiries and complaints.
 - The timescale taken to respond to or address enquiries and complaints.
- 2.4.8 Summary information from the register, as listed above, will also be published on the website.

3 General Site Operations

3.1 Objective

- 3.1.1 To design and construct the project having regard to the safety and security of the public and construction staff and to mitigate the impact of general site operations and construction activities on the environment.

3.2 Safety

- 3.2.1 As explained in Section 1.10 of this CoCP it is the contractor's responsibility to comply with all legislative requirements applicable at the time of construction.

- 3.2.2 The contractor will operate a health and safety management system in accordance with BS OHSAS 18001 Occupational Health and Safety Management Systems.

- 3.2.3 There are a number of activities that could give rise to specific safety issues for the public or construction staff. The contractor will have to consider these and other issues in the design and construction of the Project, including, for example:

- Working adjacent to built-up areas.
- Working in, over or adjacent to watercourses including the Firth of Forth.
- Working on or adjacent to public roads, footpaths or cycle tracks or in proximity to live traffic.
- Working over or adjacent to railways.
- Working in proximity to Edinburgh Airport.
- Working at height.
- Using explosives.
- Demolition.
- Undertaking electrical works.
- Working over or adjacent to, or diverting Statutory Undertakers' plant.
- Excavations in areas affected by ground gas.
- Handling contaminated materials.

- 3.2.4 Health and safety legislation, such as the Construction (Design and Management) Regulations 2007, requires the contractor to prepare a Construction Phase Health and Safety Plan prior to construction works commencing. The detailed requirements of the Plan are set out in the relevant legislation, but in summary it must ensure that adequate arrangements and welfare facilities are in place to cover:

- the safety of construction staff;
- the safety of all other people working at or visiting the construction site;
- the protection of the public in the vicinity of the construction site; and
- overall compliance with health and safety legislation, approved codes of practice and industry best practice.

- 3.2.5 In accordance with the Management of Health and Safety at Work Act 1999 (as amended) the contractor will ensure that emergency procedures are in place and that appropriate training and information is provided to personnel at the construction site regarding these procedures.
- 3.2.6 In accordance with the Construction (Design and Management) Regulations 2007, construction works will only be permitted to commence if there are there are suitable welfare facilities and a Construction Phase Health and Safety Plan in place.
- 3.2.7 Where plans and procedures required by this CoCP involve other organisations such as the Health and Safety Executive, emergency services, local authorities or other statutory bodies, the contractor will consult with them regarding the plans and procedures being put in place and provide copies of the relevant plans and procedures.
- 3.2.8 Information regarding emergency contacts and procedures contained in the Construction Phase Health and Safety Plan and Pollution Incident Response Plan (refer to Section 14) will be made available on the information website described in Section 2.3.1 of this CoCP. Emergency contact for the public will be through the enquiries and complaints procedure with this information communicated in accordance with the procedures also described in Section 2 and on information boards in accordance with Section 3.6 of this CoCP.
- 3.2.9 Examples of additional relevant health and safety legislation is listed in Section 3.13 of this CoCP, and further to these legislative requirements, the contractor will comply with the byelaws and operational requirements of the relevant road, navigation, harbour, rail and airport authorities when undertaking construction works, unless otherwise agreed with the Employer's Representative and the relevant authority.
- 3.2.10 The contractor will provide a full-time construction Health and Safety Manager as part of their resident site management team who will manage the health and safety aspects of the project during construction.

3.3 Area Management Plan

- 3.3.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include an Area Management Plan for the construction works and the contractor will appoint a Site Operations Manager who will be responsible for implementing the procedures in the plan. The Area Management Plan will be the overarching plan for the construction works and will include details of the following, as appropriate:
- The contractor's management team and structure.
 - Working hours.
 - Construction site layout and appearance, including site compounds.
 - Fencing and hoarding.
 - Use of artificial lighting.
 - Requirements associated with living accommodation.
 - Pest control procedures.
 - Site security procedures.

- Requirements for clearance of the construction site on completion of the construction works.
- Sustainability procedures to be implemented.
- Reference to the specific management plans to be prepared including the persons responsible for ensuring they are implemented.

3.3.2 Notification of the intended commencement of the works will be provided to the relevant local planning authorities in accordance with the requirements of Sections 27A to 27C of the Town and Country Planning (Scotland) Act 1997 which were inserted by section 6(1) of the Planning etc. (Scotland) Act 2006. Notification of the completion of construction works will also be provided.

3.4 Working Hours

3.4.1 Normal working hours for the road building sections of the works will be Monday to Friday 0800 to 1900 hours and Saturday 0800 to 1800 hours with a 30 minutes start-up time prior to 0800 hours on weekdays. The contractor will be permitted within the start-up time to allow staff to arrive at the site, prepare for the construction works and travel to their designated work area on site. Heavy plant and machinery will not be started within the start-up period or construction works undertaken within this period for the purposes of undertaking road construction works or so as to cause disturbance beyond the site boundaries.

3.4.2 Where it is demonstrated by the contractor that an extension to the normal working hours is necessary, these may be extended to commence at 0700 hours subject to the approval of the Employer's Representative and the relevant local authority, with the local authority's approval being provided through the Noise Liaison Group referred to in Section 5 of this CoCP. The contractor will be required to provide such information as may be considered necessary by the Noise Liaison Group if an extension to the normal working hours is sought.

3.4.3 Normal working hours for the construction of the main crossing will be Monday to Saturday 0700 to 1900 hours with a 30 minutes start-up time between 0700 and 0730 on each day. The same restrictions on work described in paragraph 3.4.1 will apply during this start-up period.

3.4.4 A 30 minutes close-down period will be included within the normal working hours described above to enable the contractor's staff to exit the site. This will include departing from the wider construction site to return to the main site offices.

3.4.5 The contractor will use best practicable means to keep noise levels within the threshold for normal working hours, as described in Section 5 of this CoCP.

3.4.6 The approval of the Employer's Representative will be required for all works to commence, in accordance with the requirements of Section 5 of this CoCP. Specific requirements in relation to noise and vibration are described in Section 5 of this CoCP and include the following:

- the contractor will use best practicable means to minimise noise and vibration in accordance with Section 5;
- the contractor will undertake assessments of likely noise and vibration levels associated with construction of the Project in accordance with paragraph 5.2.5 as part of assuring the implementation of best practicable means to minimise

- noise and vibration and demonstrating that construction works will be carried out in accordance with the Environmental Statement;
 - the contractor's assessments will be considered by the Employer's Representative and Noise Liaison Group in accordance with paragraph 5.2.6; and
 - in evaluating best practicable means, the contractor will also take account of paragraph 5.2.10 of this CoCP regarding taking consideration of local community needs and the cumulative effect of additional working hours.
- 3.4.7 Notwithstanding approval given by the Employer's Representative for works to be undertaken in accordance with the Environmental Statement, RIAs and this CoCP, as explained in paragraph 1.2.4 of this CoCP, the Scottish Ministers will be able to take action as may be necessary through the construction contracts to ensure that the construction works are undertaken in accordance with the approvals given.
- 3.4.8 Working at night and on Sundays will be permitted for 'marine works' associated with construction of the main crossing and approach viaducts, but only with the approval of the Employer's Representative and provided that the work is undertaken in accordance with the requirements of Section 5 of this CoCP. Such marine works may include:
- any works associated with construction of the foundations for the main crossing and approach viaducts within the Firth of Forth;
 - any works required to construct the towers and piers within the Firth of Forth to a reasonable level above the Highest Astronomical Tide to enable construction of the remainder of the towers under normal working hours;
 - any works reliant on the operation of major marine plant; and
 - any other works required within the Firth of Forth, including construction of any platforms required to facilitate construction of the towers or piers above the surface water level of the Firth of Forth.
- 3.4.9 The contractor will be permitted to undertake other works (works other than marine works) at night and on Sundays but only with the approval of the Employer's Representative and provided that the work is undertaken in accordance with the requirements of Section 5 of this CoCP.
- 3.4.10 Should the contractor require to undertake construction works, except works which fall under the definition of 'exceptional works' in paragraph 3.4.12 below, outwith the normal working hours and associated noise thresholds, the consent procedures described in Section 5 of this CoCP will be followed.
- 3.4.11 Where construction works are permitted to be undertaken outwith the normal working hours, the contractor will provide information regarding these works to the relevant local authorities and adjacent residents through the communications strategy described in Section 2 of this CoCP. The notification will include an explanation of the construction works to be undertaken, working hours, measures to be implemented to control construction noise and disturbance and details of the enquiries and complaints procedure.
- 3.4.12 Certain 'exceptional works' may require to be undertaken outwith normal working hours. Exceptional works are works which it would not be reasonably practicable to undertake during normal working hours and may include:

- construction works which are required in response to an emergency;
- construction works which are required as directed by the Police or other emergency services;
- construction works being undertaken as normal works which could give rise to any damage, be unsafe or be detrimental to the integrity of the works if they were not completed; and
- maintenance of plant where this is essential to maintain safe operation of the site. This does not include routine servicing or maintenance.

3.4.13 Undertaking construction works outside of the normal working hours in order to make good any programme slippage is not classed as exceptional works.

3.4.14 The contractor will notify the Employer's Representative and the relevant local authority, together with the relevant navigation or harbour authority, Network Rail or Statutory Undertakers, as appropriate, of any exceptional works that are necessary as soon as possible after the contractor becomes aware that exceptional works are necessary. The notification will include, as a minimum, an explanation of what the exceptional works were in response to and what actions are being taken.

3.5 Construction Site Layout and Appearance

3.5.1 The Area Management Plan will set out the procedures to be implemented to manage the site in accordance with a 'good housekeeping' policy and best practice. This will cover site offices, compounds and the general construction site.

3.5.2 The contractor will appoint a Site Operations Manager who will be responsible for site facilities and implementing the procedures and measures set out in the Area Management Plan such that the site facilities are managed, operated, maintained and serviced effectively to reduce disturbance and other environmental impacts associated with day-to-day site activities.

3.5.3 The site offices for the main contract will be located to the west of South Queensferry, providing office, parking, storage and welfare facilities for the construction workforce. A site compound for other facilities such as materials and equipment storage and plant will also be situated at this location to service the main crossing and the new road construction in the area. A site compound will also be located to the west of Ferrytoll junction. Site offices and a site compound will be located adjacent to Junction 1a on the M9.

3.5.4 The contractor will provide adequate car parking facilities for construction vehicles and those of construction workers at each site office and compound. Monitoring any problems associated with over-parking on residential streets and wider issues of vehicular access are covered in Section 4 of this CoCP.

3.5.5 The contractor will undertake construction of site compounds in accordance with, and provide appropriate mitigation to meet, the requirements of the Environmental Statement and this CoCP to mitigate the effect of the construction or operation of site offices and compounds.

3.5.6 The layout, appearance and operation of the construction site, site offices and compounds will be a matter for the contractor and will take cognisance of the requirements in this CoCP relating to fencing and hoarding, lighting and security. In particular, the layout, appearance and operation of the construction site, site offices and compounds will be managed taking consideration of the following requirements:

- The site office and compound layouts will segregate construction vehicles and pedestrian movements.
- All working areas will be kept in a clean and tidy condition.
- Smoking areas at site offices/compounds or work sites will be equipped with containers for smoking waste and will not be located at the boundary of working areas or adjacent to neighbouring land.
- All necessary measures will be taken to minimise the risk of fire, including preparing a Fire Safety Plan, and the contractor will comply with the requirements of the local fire authority.
- Radios (other than two-way radios for the purposes of communication related to the works) and other forms of audio equipment with loudspeakers will not be operated on any work site, unless it is related to the construction works being undertaken.
- Workers will maintain a reasonable and appropriate standard of dress at all times and will not use foul language or display lewd or derogatory behaviour.
- Appropriate measures, such as use of enclosed containers, will be employed to store waste susceptible to spreading by wind or liable to cause litter. See also section 8 of this CoCP.
- Rubbish will be removed as necessary and the site kept clean and tidy.
- Fencing and hoardings will be inspected daily, repaired and repainted as necessary. See also section 3.6 of this CoCP.
- Adequate welfare facilities will be provided for all construction staff. All toilets will be serviced and kept clean.
- Food waste will be removed as necessary. See also Section 3.9 of this CoCP.
- Good personal hygiene will be promoted by the contractor for the workforce, particularly when using site canteens or mess facilities.
- Site accesses, accesses to site offices/compounds and roads in the vicinity of site access points will be maintained clean as required. See also Section 4 of this CoCP.
- The requirements of this CoCP relating to noise and vibration. See Section 5 of this CoCP.
- The requirements of this CoCP relating to dust, odours and air pollution. See Section 6 of this CoCP.
- The requirements of this CoCP relating to the handling, storage and disposal of materials. See Sections 7 – 9 of this CoCP.
- Appropriate management and disposal of foul water and sewage. See Section 9.5 of this CoCP.

3.6 Land Made Available, Fencing and Hoarding

- 3.6.1 The Scottish Ministers will make land available to the contractor for construction of the Project. The land and rights in land the Scottish Ministers intend to acquire or use are shown in the book of reference and on the maps, plans and sections which accompany the Forth Crossing Bill.

- 3.6.2 The Scottish Ministers will provide advance notification of taking entry to land to owners and occupiers of such land in accordance with the requirements of the Forth Crossing Bill.
- 3.6.3 Prior to the start of construction, the contractor will accurately identify the land area to be occupied by the construction works. In addition to the land made available by the Scottish Ministers, the contractor may provide additional areas to facilitate their own construction methods for the Project, subject to obtaining the necessary approvals.
- 3.6.4 Where the contractor proposes to make additional land available to facilitate their construction methods for the Project, an environmental impact assessment of the use of this land will be undertaken, as may be necessary, to ensure any impacts due to construction are in line with those described in the Environmental Statement, and enable appropriate mitigation measures to be implemented. The contractor will consult with local authorities and other relevant statutory bodies listed in paragraph 1.5.7 of this CoCP regarding the environmental impact assessment and any mitigation to be provided to ensure, as far as is reasonably practicable, that the environmental impact of the use of additional land does not give rise to any environmental impact that is materially worse than the residual environmental impact identified in the Environmental Statement.
- 3.6.5 Some land will only be made available by the Scottish Ministers temporarily to facilitate construction of the Project. These areas are defined in the book of reference and maps, plans and sections which accompany the Forth Crossing Bill. The contractor will undertake a joint survey of any land made available temporarily by the Scottish Ministers with the relevant landowner, or their representative, to record the condition of the land prior to entry to the land being taken. A photographic and video record of the condition of the land will also be taken by the contractor.
- 3.6.6 The contractor will liaise with the relevant roads authority regarding condition surveys for public roads and any remedial works necessary as a consequence of the works.
- 3.6.7 All active working areas will be adequately fenced off by the contractor from members of the public and to prevent animals from straying into working areas. Factors that will be taken into consideration by the contractor in the design and provision of adequate fencing and hoarding will include:
- Maintaining adequate site security. The contractor will undertake a risk assessment as part of the design process for fencing and/or hoardings.
 - The location of the construction site, use of adjacent land and risk of the public trying to seek unauthorised entry to the site.
 - The nature of the construction activities to be undertaken.
 - Specific mitigation associated with site fencing and security to comply with the Environmental Statement and this CoCP.
 - Hoardings will include noise-attenuating structures as appropriate. Section 5 of this CoCP covers requirements relating to construction noise.
 - Gates or access points in the site boundaries, fencing or hoardings, will be positioned and constructed to mitigate the effects of noise transmitted from the site to nearby noise sensitive properties, as described in the Environmental

Statement, subject to ensuring the safety of public or the safe operation of the construction site or works.

- The location and design of site boundaries, hoardings and temporary structures on or adjacent to public roads will maintain adequate visibility at junctions and forward visibility on roads to levels acceptable to the relevant roads authority.
- Where hoardings affect visibility on pedestrian routes, the contractor will provide bulkhead lights and these will be illuminated in times of darkness. Lighting will be inspected and maintained on a regular basis by the contractor.
- Where used, the contractor will paint hoardings on the side facing away from the working area in a colour and style approved by the Employer's Representative. Viewing panes will be provided in hoardings to allow the public to see the works, subject to them not diminishing the efficiency of the hoardings with regard to security and noise attenuation or their use leading to the creation of hazards or obstructions on public roads or footpaths. Section 5 of this CoCP covers requirements relating to construction noise.

3.6.8 The contractor is expressly prohibited from displaying or allowing the display of any advertisement or notice and the like, including illicit bill or fly posting on any hoardings. All graffiti, fly posting or defacement to hoardings will be removed and made good within 48 hours of discovery.

3.6.9 An information board will be erected by the contractor at prominent positions at each working area along the site at intermittent locations where they are visible to adjacent residents and the public, including at public footpaths, rights of way and National Cycle Routes within 200m of the works, the locations being subject to the agreement of the relevant local authority. Prominent locations will also include site accesses, offices and compounds. Information boards will include information on the work programme and estimated duration of the overall works in the area, together with the Project website address and relevant contact details for the Enquiries and Complaints Procedure, including contact numbers, email and postal address, as described in Section 2 of this CoCP.

3.6.10 The contractor will remove all temporary fencing and hoarding following completion of work and following consideration for any ongoing need to retain fencing and hoarding in line with the factors set out in paragraph 3.6.7 of this CoCP.

3.6.11 The contractor will seek to minimise the area of land used for the Project. If any land is deemed surplus to requirements following construction of the Project, the Scottish Ministers will seek to dispose of this land in accordance with normal procedures (Crichel Down Rules).

3.7 Lighting

3.7.1 Site lighting may be required in the following situations:

- Provision of background lighting for site offices or compounds, for security and to aid the safe movement of staff on site.
- Provision of temporary road lighting along temporary access roads.
- Provision of bulkhead lighting for pedestrian walkways, as described in paragraph 3.6.7 of this CoCP.

- Provision of temporary road lighting to maintain at least an equivalent level of lighting where there is existing lighting in place prior to construction.
- Provision of temporary road lighting where there is currently no lighting but lighting is required as a safety measure under temporary traffic management, for example at carriageway cross-overs and where temporary access roads cross existing public roads.
- Provision of task lighting required for night time activities or winter afternoon activities, such as installation of bridge beams.
- Provision of navigation warning lights to safely identify plant and construction within the Firth of Forth.
- Provision of aircraft warning lights to safely identify the main towers and construction plant or apparatus.

3.7.2 The contractor will consult with the airport operator of Edinburgh Airport regarding any construction activities which may affect the airport controlled airspace and the use of appropriate lighting or other warning measures to be implemented. The contractor will obtain any consents necessary for construction works within the airport controlled airspace.

3.7.3 The contractor will take consideration of the following requirements in relation to the provision of temporary lighting:

- The lighting design will seek to reduce visual intrusion and light spillage, including avoiding unnecessary use of lighting, at nearby residential properties and sites of ecological interest, insofar as is consistent with the safe and efficient operation of the construction site.
- Where necessary, lighting to site boundaries will be provided with illuminations sufficient for the safety of the passing public.
- Lighting will be positioned and directed to reduce nuisance to residents and avoid creating distractions or confusion to passing drivers on adjacent public roads and railways.
- Where necessary, lighting at locations where the road layout is to be changed will be provided by early commissioning of permanent new lighting where feasible or by provision of mobile lighting towers or use of columns in temporary locations.
- Special consideration of lighting requirements will be required in the vicinity of Edinburgh Airport and the existing rail network and the contractor will agree lighting requirements with the relevant authorities prior to the commencement of works which may affect their areas of responsibility.
- So far as reasonably practicable, all power to temporary traffic signals or lighting will be taken from mains supplies rather than from portable generators.
- The contractor will implement appropriate measures in accordance with the Scottish Government Guidance: Controlling Light Pollution and Reducing Lighting Energy Consumption insofar as it is applicable to use of lighting associated with the construction works.

3.7.4 The contractor will comply with the requirements of the relevant roads authority with regard to temporary lighting on or adjacent to public roads.

- 3.7.5 The contractor will comply with the requirements of the Environmental Protection Act 1990, as amended with regards to preventing or counteracting the effects of any nuisance due to artificial lighting.

3.8 Living Accommodation

- 3.8.1 No living accommodation will be permitted on land made available by the Scottish Ministers for the Project or on the construction site, except with the approval of the relevant local authority and/or the Employer's Representative as appropriate. On-site accommodation will only be provided for security personnel and small numbers of personnel who are required to be on-site for 24 hours. Mess rooms, locker rooms, welfare facilities and showers will be permitted.

- 3.8.2 Temporary living accommodation on land outside that made available by the Scottish Ministers will only be permitted with the approval of the relevant landowner to the use of such land, the local authority (through the planning process) and the Employer's Representative.

3.9 Pest Control

- 3.9.1 The contractor will implement adequate arrangements for the disposal of food waste or other material attractive to pests or vermin to control the risk of infestation. If infestation occurs the contractor will take such actions as is necessary to deal with it, as required by the relevant local authority.

3.10 Security

- 3.10.1 The contractor will be responsible for the security of the construction site and will establish appropriate security measures to protect the public and prevent unauthorised entry to or exit from the site. The contractor will close and lock site gates when there is no site activity and implement site security measures.

- 3.10.2 The contractor will consider the need for security cameras and will provide these as necessary to maintain the security of the site and safety of the public. Where security cameras are used, they will be placed in locations which will not cause offence or unduly infringe upon the privacy of local residents.

3.11 Clearance of Site on Completion

- 3.11.1 The contractor will clear and clean all working areas as work proceeds and when no longer required for the carrying out of construction works. This will also include areas adjacent to the site which may require to be cleared or cleaned due to construction activities and site accesses and roads in the vicinity of site access points.

- 3.11.2 Where land has been made available by the Scottish Ministers on a temporary basis for construction of the Project, the contractor will reinstate this land in accordance with the provisions in the Forth Crossing Bill prior to it being returned to the relevant landowner.

3.12 Consents and Licences

- 3.12.1 Where appropriate, the different sections of this CoCP make reference to consents and licences that will be required during construction. The contractor will maintain a

Consents Register which will document all consent requirements and record all applications made and the status of the applications.

3.13 References

- BS OHSAS 18001:2007 Occupational Health and Safety Management Systems
- Construction (Design and Management) Regulations 2007
- Controlling Light Pollution and Reducing Lighting Energy Consumption, Scottish Government Guidance Note, March 2007
- Environmental Protection Act 1990, as amended
- Explosives Act 1875, as amended
- Forth Road Bridge Byelaws for the Management, Regulation and Control of the Forth Road Bridge
- Forth Ports Authority, Forth Byelaws
- Health and Safety at Work etc Act 1974
- Management of Health and Safety at Work Regulations 1999, as amended
- Planning etc. (Scotland) Act 2006
- Prevention of Damage by Pests Act 1949
- The Diving at Work Regulations 1997
- The Diving Operations at Work Regulations 1981, as amended
- The Control of Explosives Regulations 1991
- The Control of Noise at Work Regulations 2005
- The Control of Substances Hazardous to Health Regulations 2002, as amended
- The Control of Vibration at Work Regulations 2005
- The Electricity at Work Regulations 1989
- The Work at Height Regulations 2005, as amended
- Town and Country Planning (Scotland) Act 1997

4 Public Access and Traffic Management

4.1 Objective

- 4.1.1 To comply with the provisions of the Forth Crossing Bill regarding the diversion or closure of any roads, ways or private accesses and the like and implement appropriate measures in the design and construction of the Project to mitigate disruption to buses, other motor vehicles, cyclists, pedestrians, waterway and other users.

4.2 Traffic Management Requirements and Plan

- 4.2.1 Construction of the Project will involve:

- widening or improving sections of existing roads and footpaths;
- construction of tie-ins to existing roads and footpaths;
- construction of maintenance hard-standings and lay-bys adjacent to existing roads;
- demolition and construction adjacent to or over public roads and footpaths; and
- construction adjacent to or over railways.

- 4.2.2 The contractor will implement traffic management measures during the construction of the Project on or adjacent to public roads, cycle tracks and other paths as necessary. A lead-in notice period of up to 3 months may be required prior to the implementation of certain temporary traffic management measures associated with the occupation or temporary closure of existing roads in accordance with relevant statutory requirements. Traffic management works will comply with the provisions of the Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations. Traffic signs will comply with the Traffic Signs Regulations and General Directions 2002, as amended.

- 4.2.3 The design of traffic management schemes will ensure the safe transition for road users from existing roads to the traffic managed sections of road. In accordance with the Traffic Signs Manual: Chapter 8, the contractor will ensure that any temporary signs are consistent with permanent signs, that the choice of sign location accords with actual site conditions and that signs are placed where they will be clearly seen and cause minimum inconvenience to road users.

- 4.2.4 A Traffic Management Working Group (TMWG) has been formed for the Project which will be chaired by the Employer's Representative and includes representatives from roads authorities and the emergency services. The contractor will consult with the TMWG regarding traffic management and other traffic related measures to be implemented in accordance with the CoCP. The members of the TMWG will agree a resolution procedure to be followed if there are any disputes regarding the traffic management and other traffic related measures to be implemented.

- 4.2.5 The Project includes the provision of an Intelligent Transport System (ITS), which will include a system to implement variable speed limits, lane control and variable message signs. To the extent available and where reasonable and practicable, the contractor will liaise with Traffic Scotland to use the ITS to complement traffic

management schemes implemented during construction of the Project to assist in the control and management of traffic on the road network. The contractor will also provide Traffic Scotland with regular updates regarding any disruption caused by construction works on the road network. The information website described in Section 2.3.1 of this CoCP will provide a link to the Traffic Scotland website to provide access to traffic information.

- 4.2.6 As explained in Section 1.5 of this CoCP, the contractor will prepare a Traffic Management Plan which will describe the traffic management, safety and control measures proposed during construction of the Project. The Traffic Management Plan will include details of the following, as appropriate:
- Measures to provide for the safety of traffic, the public and construction staff during traffic management works and temporary traffic control measures.
 - Procedures to be followed for the temporary or permanent closure or diversion of roads or accesses.
 - Procedures to be followed to obtain consent to work on or over railways.
 - Existing pedestrian, equestrian and cyclist routes, including whether the routes are used by one or more of these groups of road users.
 - Measures to be implemented to reduce construction traffic impacts or impacts associated with over-parking on residential streets.
 - Temporary and permanent access to the works.
 - Permitted access routes for construction traffic.
 - Monitoring requirements in relation to the Plan.
- 4.2.7 The Traffic Management Plan will include a programme of traffic management measures to be implemented and details of traffic management proposals for the works on or adjacent to public roads. The contractor will appoint a Traffic Safety and Control Officer who will be responsible for the implementation of the Traffic Management Plan. The details to be provided in the Plan will include the following, as appropriate:
- Phasing of works.
 - Drawings showing traffic management layouts, signing and apparatus to be implemented, including proposed routes for pedestrians, equestrians and cyclists.
 - Timing of operations.
 - A list of roads which may be used by construction traffic in the vicinity of the site including any restrictions to construction traffic on these routes.
 - The name and contact details of the contractor's Traffic Safety and Control Officer.
 - A register of applications for consents associated with temporary traffic management measures.
- 4.2.8 The responsibilities of the Traffic Safety and Control Officer will include:
- all traffic management measures associated with the Project;

- ensuring that all equipment is in place and in full working order at all times;
- enforcement of all relevant health and safety directives in liaison with the contractor's Health and Safety Manager, relating to operations and live traffic;
- enforcement of site access requirements;
- liaison with the Employer's Representative, the CDM Co-ordinator and the relevant authorities and continued monitoring of the traffic management measures adopted; and
- arranging for site inspections at regular intervals and equipment attended to and maintained and in the case of accidents or incidents having replacement signs, cones, bollards and lights and the like erected without delay.

4.2.9 Construction of the Project will also involve working within the navigable waters of the Firth of Forth. Works which involve working within the Firth of Forth or use of marine plant will necessarily impact on other marine activities and could include:

- construction works associated with the foundations and towers for the main crossing;
- transport of materials within the Firth of Forth to and from the construction site;
- transport of men and materials from the foreshore to the construction areas at the towers; and
- lifting the deck sections into place.

4.2.10 A Marine Liaison Group will be formed which will include representatives from the navigation and harbour authorities (Forth Ports plc), operator of Rosyth Dockyard (Babcock International Group (or their subsidiaries)), operator of Port Edgar Marina, the police and coast guard services.

4.2.11 As is also explained in Section 1.5 of this CoCP, the contractor will prepare a Marine Traffic Management Plan which will describe the traffic management, safety and control measures to be implemented with regard to operating within the Firth of Forth and procedures and measures to manage operations and reduce the impact of marine works on navigation within the Firth of Forth during construction.

4.2.12 The contractor will consult with, and take consideration of the views of the Marine Liaison Group during development of the Marine Traffic Management Plan. The consultation will be to ensure that plan adequately covers the procedures to manage construction activities within the Firth of Forth and limit disruption to navigation whilst enabling the safe construction of the main crossing.

4.2.13 The contractor will also liaise with relevant organisations representing users of the Firth of Forth, including appropriate organisations representing fishing interests, to advise them of the construction works to be undertaken within the Firth of Forth and any planned restrictions or restrictions in place to navigation. See also paragraphs 4.6.12 and 4.6.13 of this CoCP.

4.3 Traffic Safety and Control

4.3.1 The contractor will take appropriate actions, including the design and installation of traffic management schemes to accommodate the safe passage of traffic through any roadworks, to reduce the likelihood of traffic diverting onto alternative routes, to mitigate potential impacts on the local community and keep delays and disruptions

to traffic to a reasonably practicable minimum. This will include traffic control on local roads as may be necessary as part of the traffic management schemes. The contractor will avoid leaving traffic management measures in place unnecessarily.

- 4.3.2 The contractor will consult with the TMWG regarding the traffic management measures proposed and will undertake Road Safety Audits in accordance with the Design Manual for Roads and Bridges for complex or major traffic management schemes. Regular meetings will be held with the TMWG during the construction period.
- 4.3.3 Where required, as determined through consultation with the relevant authorities, the contractor will provide speed detection cameras at temporary traffic management schemes.
- 4.3.4 When necessary during construction on the line of the trunk roads, the contractor will operate a vehicle recovery system to minimise the impact of breakdowns or accidents on the flow of traffic. This will cover the removal of shed loads and vehicles that are stationary due to mechanical breakdowns, accident damage or abandoned in the trafficked road within the works to a safe location outwith the works site.
- 4.3.5 The contractor will provide a CCTV system for use in monitoring traffic management schemes, should this be necessary for the safe and effective monitoring of the schemes, maintaining traffic flow and operation of the vehicle recovery system.
- 4.3.6 Where possible within the works, and without compromising the safe and efficient construction of the scheme, the contractor will provide an emergency lane for use by emergency vehicles when a contraflow is in operation.
- 4.3.7 The contractor will assist the Police and the relevant roads authorities, as appropriate, in moving abnormal loads through the works.
- 4.3.8 The contractor will consult with the operators of railways regarding construction works on, over or adjacent to railways or other works which may affect railways and will obtain any consents necessary for the works to be undertaken.
- 4.3.9 The contractor will consult with:
- relevant roads authorities including FETA;
 - Traffic Scotland;
 - the organisers of major or significant local events, and owners of significant local visitor attractions, in adjacent local authority areas including the City of Edinburgh, Fife, West Lothian, Perth and Kinross, Clackmannanshire and Falkirk;
 - the operators of Rosyth ferry terminal;
 - the operators of Rosyth HM Royal Dockyard; and
 - other relevant organisations

regarding traffic management and control measures to be implemented to accommodate abnormal traffic or unusually high traffic demands or material disruption. The contractor will also comply with the requirements of Section 2 of this CoCP regarding public liaison in this regard.

- 4.3.10 The contractor will ensure as part of the temporary traffic management schemes or at times of material disruption that appropriate alternative routes are signposted for currently signed destinations and visitor attractions and the contractor will agree those routes with the TMWG. The contractor will also consult with, and take appropriate consideration of the views of, the owner and operator of the visitor attraction.
- 4.3.11 The Scottish Ministers will work with the relevant local authorities and Police regarding monitoring and appropriate measures to address any issues associated with hazards created by the public parking on roads to view construction of the Project. This matter will also be considered by the TMWG.

4.4 Temporary or Permanent Closure or Diversion

- 4.4.1 The Forth Crossing Bill sets out requirements for maintaining access on roads, footways, cycle tracks, bridleways, public rights of way and private accesses ('road or access and the like'). Unless specifically provided for in the Forth Crossing Bill, or otherwise agreed with the relevant roads authority or the owner and occupier of a private access, the contractor will not close or divert any road or access or the like. Due regard will also be taken of the Land Reform (Scotland) Act 2003.
- 4.4.2 Where the contractor proposes to provide a temporary or substitute road or access or the like, the width and standard of construction and any lighting required will be suitable for the traffic anticipated to use the route. The contractor will maintain the temporary or substitute road or access or the like to provide adequately for the traffic using the route. The contractor will apply for any consents and prepare any orders or regulations required for temporary traffic management schemes or road closures and comply with the requirements of the relevant roads authority in this regard and to ensure that temporary or substitute roads have the appropriate legal status.
- 4.4.3 If a road needs to be closed temporarily to facilitate construction works, for example to enable the lifting of bridge beams over an existing road, the contractor will comply with the requirements of the relevant roads authority for the affected roads, any roads authority through which it is intended to divert traffic during the temporary road closure and the Police. The contractor will demonstrate to these authorities that the construction work cannot be carried out safely without the road closure.

4.5 Public Transport, Pedestrian, Equestrian or Cycle Routes

- 4.5.1 The contractor will consult with relevant local authorities, the operators of Ferrytoll Park and Ride and relevant public transport and local bus operators regarding traffic management schemes that may affect the flow of buses to and from the park and ride facility and will implement appropriate measures to mitigate disruption to bus services. The contractor will also comply with the requirements of Section 2 of this CoCP regarding public liaison on such matters.
- 4.5.2 Where existing public transport operates and bus stops are to be temporarily closed or relocated, or become unsafe due to construction activities, the contractor will provide a safe alternative bus stop, where this is reasonable and practicable. The contractor will obtain agreement to any proposed relocations or alterations to bus stops from the relevant roads authority and bus operators, as appropriate. The contractor will also comply with the requirements of Section 2 of this CoCP regarding public liaison on such matters.

- 4.5.3 Section 4.4 of this CoCP applies in relation to maintaining access for the public on footpaths, footways, cycle tracks, bridleways, public rights of way and the like.
- 4.5.4 Traffic management measures will accommodate the safe travel of pedestrians and other non-motorised users, as appropriate, and be in accordance with Transport Scotland's publication Roads for All: The Trunk Road Network Disability Equality Scheme and Action Plan, as appropriate.
- 4.5.5 Where separate routes used by pedestrians and other non-motorised users are affected by construction works, the contractor will provide an alternative separate route within the traffic management scheme being implemented.
- 4.5.6 The information in the Traffic Management Plan relating to traffic management layouts, signing and apparatus to be implemented will include details of any temporary measures or signing to be implemented to maintain access to and signing of National Cycle Routes and other existing routes signposted for pedestrians or cyclists.
- 4.5.7 Where new routes for pedestrians and other non-motorised users are provided as part of the Project, the contractor will make these routes available for use and signpost them appropriately when they are constructed to a condition and approved as being safe for use and any traffic regulation orders necessary to designate them for use are in place.

4.6 General Measures to Reduce Construction Traffic Impacts

- 4.6.1 Section 4.7 of this CoCP applies in relation to access routes to the site used by construction traffic.
- 4.6.2 Where appropriate, the contractor will provide haul routes through the works for use by construction vehicles to minimise the need to use public roads. Site access points will be positioned to enable the use of haul routes to be maximised, subject to safety considerations in the design and construction of appropriate access points.
- 4.6.3 The contractor will comply with the requirements of the relevant roads authority regarding the layout and positioning of site accesses.
- 4.6.4 Where site accesses and at-grade crossings of public roads are required for construction vehicles, the contractor will provide traffic management measures as required and design these measures to avoid unnecessary delay to vehicles on the public road.
- 4.6.5 The contractor will keep roads, accesses and the like free from mud and other loose materials arising from the works. The contractor will also comply with the requirements of section 95 of the Roads (Scotland) Act 1984 in this regard.
- 4.6.6 Where reasonable and practicable, construction vehicles will avoid travelling in convoys on public roads.
- 4.6.7 The contractor will develop and implement a Green Travel Plan which will seek to reduce the effects of construction staff travelling to the site on the road network.
- 4.6.8 Construction staff using private vehicles to travel to the site will park their vehicles in designated construction site car parks and not on public roads within a two mile radius of the site. Parking of vehicles being used for construction purposes will be permitted on public roads within the limits of any traffic management measures

provided for the works or if the vehicles avoid causing disruption to traffic and local residents.

- 4.6.9 The contractor will seek to arrange delivery of materials to the site by road between 0930 and 1600 hours to minimise disruption to road users during peak periods. This will be subject to the need for deliveries to occur at other times to maintain the safe and efficient operation of the construction works.
- 4.6.10 The contractor will proscribe the routine movement of slow moving construction plant on commuter or traffic sensitive public roads within a five mile radius of the construction site outwith the period defined in paragraph 4.6.9.
- 4.6.11 The design of temporary traffic management schemes will maintain an appropriate number of lanes on public roads in line with the requirements of paragraph 4.3.1 of this CoCP. Lane closures will only be permitted with the approval of the Employer's Representative and the relevant roads authority.
- 4.6.12 Appropriate use will be made of the Firth of Forth as a transport corridor for materials for construction of the main crossing, subject to the use of barges or other vessels being safe, efficient and cost effective, to minimise disruption to road users.
- 4.6.13 The Scottish Ministers will consult with navigation and harbour authorities to develop an operational procedure for construction within the Firth of Forth to enable navigation requirements to be managed whilst enabling construction to proceed in a safe and efficient manner. The contractor will comply with the procedure developed unless otherwise agreed with the relevant navigation and harbour authorities and the Employer's Representative. The specific measures to be put in place to implement the procedure will be set out in the Marine Traffic Management Plan.

4.7 Access Routes for Construction Traffic

- 4.7.1 The Scottish Ministers will consult with local roads authorities regarding access routes that may be used by the contractor to access the construction site, including consultation regarding any particular timing restrictions on the use of roads. Access along other routes will not be permitted without the agreement of the relevant roads authority and all other possible access points to the site from existing roads will be signed with a 'NO ACCESS TO FRC CONSTRUCTION TRAFFIC' or other similar sign. Signing will be provided by the contractor, including seeking any approvals or consents necessary.
- 4.7.2 Access routes for construction traffic will be limited, as far as reasonably practicable, to the trunk road network and main roads on the local road network. Access along other local roads will be restricted but may be necessary, for example, to enable transport or delivery of locally sourced materials. Access along residential roads will generally be prohibited. In instances where access along lower class local roads and roads within residential areas is required, the contractor will keep this to a reasonably practical minimum. Information regarding public roads to be used by construction traffic will be provided on the website referred to in Section 2 of this CoCP.
- 4.7.3 The contractor will keep site access points clear at all times and will design and construct site access points to a suitable standard to enable the smooth access and egress of vehicles in a forward direction to limit disruption to road users due to use of the access points. The contractor will consult with the relevant roads authorities regarding the positioning of site access and egress points.

- 4.7.4 The locations of the construction site offices and compounds are described in Section 3.5 of this CoCP. Site access points will be required for each of the site offices and compounds. The positioning of access for the site offices and compounds will take cognisance of the restrictions set in relation to access routes for construction traffic.
- 4.7.5 Access along Society Road, South Queensferry will be necessary early in the construction stages associated with provision of the haul road between the site compound to the west of South Queensferry and Society Road. Limited access will also be necessary at the end of construction to allow the removal of the haul road and reinstatement of the ground adjacent to Society Road. The junction between the haul road and Society Road will be traffic-managed and following construction of the haul road the contractor will not be permitted to use any part of Hopetoun Road/Society Road to undertake construction activities outwith the Act limits or as an access route for construction vehicles.
- 4.7.6 The contractor will widen and upgrade Society Road, South Queensferry within the limits of deviation shown in the maps, plans and sections accompanying the Forth Crossing Bill to accommodate construction and public traffic over this length of the road.
- 4.7.7 The contractor will design any access provided to the south foreshore of the Firth of Forth which passes through Port Edgar Barracks to limit impacts within the barracks complex. Such access will be used to facilitate the transport of construction staff and materials to the tower and pier construction areas for the main crossing and the approach viaducts.
- 4.7.8 The contractor will comply with the Forth Road Bridge Byelaws for the Management, Regulation and Control of the Forth Road Bridge in relation to use of the bridge by construction traffic.

4.8 Monitoring

- 4.8.1 The contractor will monitor traffic management schemes to maintain their effectiveness and condition and to provide for the safety of traffic, the public and construction staff during traffic management works and temporary traffic control measures. The contractor will provide information regarding any delays to traffic due to construction works to Traffic Scotland.
- 4.8.2 The contractor will monitor traffic levels on roads, including undertaking monitoring where reasonably required by the police or the relevant roads authority, in line with the requirements of paragraph 4.8.1 to monitor the effectiveness of traffic management schemes.
- 4.8.3 The contractor will monitor site accesses and public roads adjacent to access points to enable measures to keep accesses and roads clean to be implemented as required.

4.9 References

- Design Manual for Roads and Bridges, Volume 5 Section 2 Part 2, HD19/03 Road Safety Audit, Highways Agency, Scottish Executive, Welsh Assembly Government, The Department for Regional Development Northern Ireland

- Forth Road Bridge Byelaws for the Management, Regulation and Control of the Forth Road Bridge
- Land Reform (Scotland) Act 2003
- New Roads and Street Works Act 1991
- Roads for All: The Trunk Road Network Disability Equality Scheme and Action Plan, Transport Scotland, 2006
- Roads (Scotland) Act 1984
- Road Traffic Regulation Act 1984, as amended
- The Traffic Signs Regulations and General Directions 2002, as amended
- Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations, Department for Transport, 2009
- Well Maintained Highways, Code of Practice for Highway Maintenance Management, Roads Liaison Group, 2005

5 Noise and Vibration

5.1 Objective

- 5.1.1 To use best practicable means during construction works to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors arising from construction activities.

5.2 Mitigation of Noise and Vibration Impacts

- 5.2.1 In line with the requirements of Section 1.9 of this CoCP, the contractor will have to undertake the works so that the noise and vibration effects of the construction of the scheme are not worse than the residual effects identified in the Environmental Statement. This CoCP does not define those noise effects but it does set out controls, processes and methods to be followed to comply with the obligations described in Sections 1.2 and 1.9 of this CoCP.
- 5.2.2 A Noise Liaison Group will be formed which will be chaired by the Employer's Representative and will include representatives from the local authorities and Scottish Natural Heritage. The Noise Liaison Group will provide oversight of all aspects of noise planning, control during construction and monitoring. The contractor will consult with the Noise Liaison Group regarding all aspects of noise management, planning, noise related issues and monitoring information to provide assurance that construction works are being undertaken in accordance with the Environmental Statement, RIAAs and this CoCP.
- 5.2.3 The contractor will comply with the contents and recommendations of BS 5228: 'Noise and Vibration Control on Construction and Open Sites', together with the specific requirements of this CoCP.
- 5.2.4 The contractor will use the principle of best practicable means in the design and construction of the scheme, including the design of mitigation measures, to control and limit noise and vibration effects during construction. Best practicable means are defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990 as those measures which are 'reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications'.
- 5.2.5 The contractor will undertake an assessment of the likely noise and vibration levels associated with construction of the Project as part of assuring the implementation of best practicable means to minimise noise (including vibration) and demonstrating that construction works will be carried out in accordance with the Environmental Statement (refer to Section 5.3) which will be submitted to the Employer's Representative for approval. The assessment will include an assessment of maximum noise levels (refer also to Section 5.4 of this CoCP). As part of the assessment the contractor will be required to provide forecasts for maximum noise levels for construction methods that generate loud and regular impulsive noise (e.g. percussively driven piles) where it is practicable to do so (i.e. where source data is available to support calculations). The Employer's Representative will, in considering the contractor's assessments, operate in accordance with its management plan, as agreed with the Noise Liaison Group.
- 5.2.6 The Noise Liaison Group will also consider the assessments submitted by the contractor, including considering whether the proposed construction methods will comply with this CoCP and whether best practicable means methods are proposed.

In considering whether to approve the contractor's assessments, the Employer's Representative will have regard to the requirements of the Environmental Statement (including the noise and vibration limiting criteria defined by the residual noise effects identified in the Environmental Statement), the RIAAs, this CoCP and take appropriate consideration of the views of the Noise Liaison Group. The contractor will not be permitted to undertake construction works until the relevant assessment is approved by the Employer's Representative.

5.2.7 In relation to best practicable means, the contractor will employ appropriate measures which may include:

- Appropriate selection of plant, construction methods and programming, including appropriate scheduling of noisier activities within the permitted working hours. Only plant conforming with or better than relevant national or international standards, directives or recommendations on noise and vibration emissions will be used. Construction plant will be maintained in good condition with regard to minimising noise output and workers' exposure to harmful noise and vibration.
- In addition to minimising noise and vibration at source or adverse effects through other mitigation measures, the contractor will demonstrate in its planning and assessments that it has considered undertaking works in those hours that minimise potential disturbance.
- Construction plant will be operated and maintained appropriately, having regard to the manufacturer's written recommendations or using other appropriate operation and maintenance programmes which reduce noise and vibration emissions. All vehicles and plant will be switched off when not in use.
- Design and use of site hoardings and screens, where necessary, to provide acoustic screening at the earliest opportunity, including appropriate screening of the haul road to be constructed from the site compound to the west of South Queensferry to Society Road. Where practicable, doors and gates will not be located opposite occupied noise-sensitive buildings. The mechanisms and procedures for opening and closing doors/gates will minimise noise, as far as reasonably practicable.
- Erection of operational noise barriers as early as practicable in the construction process to provide additional protection against construction noise.
- Choice of routes and programming for the transport of construction materials, spoil and personnel to reduce the risk of increased noise and vibration impacts due to the construction of the Project.
- The positioning of construction plant and activities to minimise noise at sensitive locations.
- The use of mufflers on pneumatic tools.
- The use of non-reciprocating constructional plant.
- The use, where necessary, of effective sound reducing enclosures.

5.2.8 Piling works and blasting works will be kept to the minimum practicable taking consideration of the requirements of the design and programme requirements for construction of the Project and the commitment in the Environmental Statement not to undertake percussive piling at night.

- 5.2.9 The contractor will limit construction activities which could cause disturbance outside normal working hours to a reasonably practicable minimum.
- 5.2.10 The contractor will take account of the cumulative effect of construction works on adjacent residents and employ best practicable means to provide a respite period each week, except where it is accepted by the Employer's Representative through the review of the contractor's assessments that continuous working is necessary for certain activities. In evaluating best practicable means the contractor will consider:
- local community needs (e.g. controlling construction noise in the evening in dense, currently quiet residential areas with young children) as well as construction requirements (e.g. safety, engineering practicability); and
 - the cumulative effect of additional working hours (for example there may be a greater need to control evening construction noise, and/or provide respite periods during the weekends, if the works are concurrent with major daytime activities and already permitted long term noisy night-time activities).
- 5.2.11 Only where the Employer's Representative is satisfied that it is an essential requirement of the critical programme for the project, that the impact of undertaking the works during normal working hours would be unacceptable, that undertaking the works outside normal working hours is necessary in accordance with best practicable means methods, or if the works need to be completed to ensure the integrity of the infrastructure being provided will consent be given for works to be undertaken under this paragraph. The Employer's Representative must take account of the views of the Noise Liaison Group in this regard.
- 5.2.12 Ground vibration at any structure, property or building affected by blasting, will comply with the requirements set out in Sections 5.3 and 5.8 of this CoCP.
- 5.2.13 The contractor will carry out a risk assessment of the effects of the design and construction of the Project on the structural integrity of adjacent buildings and structures. The contractor will carry out a structural or dilapidation survey of all buildings or structures that are considered, based on the risk assessment, to be at risk due to vibration. The contractor will consult with the owners and occupiers of buildings identified by the risk assessment to be potentially at risk due to vibration. The consultation will be to seek to agree entry to undertake building condition surveys, and then if necessary undertake any precautionary works which may be necessary in advance of works commencing to address the risks identified. Building condition surveys of those properties will be undertaken prior to and following completion of construction works.
- 5.2.14 The contractor will comply with the requirements in relation to the control of noise and vibration set out in the RIAAs for any works associated with the construction of the main crossing and approach viaducts over the Firth of Forth. To the extent that their proposals differ from those assumed by the Environmental Statement and the RIAAs, the contractor will consult with SNH, Marine Scotland and SEPA regarding the construction methods to be used and mitigation measures to be implemented to comply with the Appropriate Assessments. See also paragraphs 1.9.5 and 1.9.6 regarding the Appropriate Assessments and Section 10 of this CoCP regarding Ecology.
- 5.2.15 Noise insulation work may be carried out or a grant made in respect of carrying out noise insulation work to eligible buildings in accordance with the Noise Insulation (Scotland) Regulations 1975. The regulations can apply where construction work seriously affects, or will seriously affect for a substantial period of time the

enjoyment of the building. Application of the regulations will apply under this CoCP where noise levels exceed the thresholds defined in Table 5.2.13 below, in the following circumstances:

- The building is an eligible building as defined in the Noise Insulation (Scotland) Regulations 1975.
- The noise level exceeds or the predicted noise level is likely to exceed the noise thresholds set out in Table 5.2.13 below for at least 10 days out of any period of 15 consecutive calendar days or alternatively 40 days in any 6 month period.
- Noise insulation does not already exist at the building that is of an equivalent standard to that which would be allowed for in accordance with the Noise Insulation (Scotland) Regulations 1975.

Table 5.2.13 Noise Insulation Thresholds Levels

Item	Day	Time	Averaging Period T	Noise Level $L_{Aeq,T}$
Normal Working Hours (Road sections)	Mondays to Fridays	0800 - 1900	11 hours	75
Normal Working Hours (Road sections)	Saturdays	0800 - 1800	10 hours	75
Normal Working Hours (Main crossing)	Mondays to Saturdays	0700 - 1900	12 hours	75
Extended Working Hours (All Works)	Mondays to Saturdays	1800 or 1900 - 2200	1 hour	65
	Sundays	0700 - 2200	1 hour	65
	Night time any day	2200 - 0700	1 hour	55

Note: All noise levels will be predicted or measured values 1m from each noise sensitive façade.

5.2.16 The Scottish Ministers will consider at their discretion applications supported by evidence for noise insulation or temporary rehousing from occupiers who may have special circumstances, such as night workers, those working in home occupations requiring a particularly quiet environment and those with a medical condition which will be seriously aggravated by construction noise, and provide noise insulation or temporary housing where it is demonstrated that this is necessary. In the case of noise insulation, this will be provided to an appropriate specification in accordance with the Noise Insulation (Scotland) Regulations 1975. In the case of temporary rehousing, this will be considered in accordance with this paragraph and provided under Part II, section 26 of the Land Compensation (Scotland) Act 1973.

5.2.17 The contractor will consult with the occupiers of non-residential, noise sensitive buildings as defined in the Environmental Statement regarding the noise thresholds set out in Table 5.2.13 above to consider any specific mitigation that may be required for these buildings to reduce the impact of construction noise.

5.2.18 Part II, Section 26 of the Land Compensation (Scotland) Act 1973 sets out the conditions where compensation associated with temporary rehousing may be provided. This may be implemented where the enjoyment of a dwelling is affected to such an extent that continued occupation of the dwelling is not reasonably

practicable. In exceptional circumstances, such as where noise and vibration levels are predicted to significantly exceed the thresholds set out in Table 5.2.13 and Table 5.3.7 of this CoCP, or the predicted levels and duration of noise and vibration are likely to cause significant effects, reasonable expenses incurred by the occupier in providing suitable alternative residential accommodation in accordance with the provisions of the 1973 Act may be paid. Considerations in relation to temporary rehousing will be based on the contractor's programme, proposed method of working and any predicted noise effects likely to occur. Any requests in relation to this aspect will be considered on an individual basis.

- 5.2.19 The contractor will use best practicable means to minimise the extent to which noise insulation work or temporary rehousing of occupiers of dwellings adjacent to the works needs to be considered.

5.3 Compliance with the Environmental Statement

- 5.3.1 Notwithstanding the requirement to use best practicable means to minimise noise and vibration at all times, as explained in paragraph 5.2.1, the contractor will have to undertake the works so that the noise and vibration effects of the construction of the scheme are not worse than the residual effects identified in the Environmental Statement, in accordance with paragraph 1.9.3 of this CoCP. The assessment undertaken and reported in the Environmental Statement defines noise and vibration limiting criteria for the construction of the scheme.

Noise Criteria

- 5.3.2 Chapter 19 of the Environmental Statement provides the assessment of construction noise and vibration (section 19.6). The basis for identifying impacts and effects is whether the predicted noise from the construction activities exceeds the relevant 'Assessment Category'. Consistent with BS 5228 the Assessment Category for a receptor is defined for the day, evening and night-time periods based upon the measured baseline noise levels at the receptor.
- 5.3.3 Progressively more onerous Assessment Category values (i.e. lower noise levels) are defined for day, evening and night-time periods and for locations with quieter existing environments. This is in accordance with the approach recommended in BS 5228. The Assessment Category Values are contained in Table 19.10 of the Environmental Statement and are as follows:

Table 5.3.3 Construction Noise Impact Criteria

Period	Assessment Category, dB_{Leq}		
	A	B	C
Night	45	50	55
Evening	55	60	65
Day	65	70	75

Category A: are threshold values to use when ambient noise levels (rounded to the nearest 5 dB) are less than these values;
 Category B: are values to use when ambient noise levels (rounded to the nearest 5 dB) are the same as category A values; and
 Category C: are values to use when ambient noise levels (rounded to the nearest 5 dB) are higher than category A values.

- 5.3.4 Appendix 19.2 of the Environmental Statement presents the measured baseline noise levels, the derived Assessment Category and the worst month predicted noise levels for the works.

Vibration Criteria

- 5.3.5 Criteria and procedures for vibration control are specified for three purposes and assessed using three different sets of parameters:
- To protect the occupants and users of buildings from disturbance, for which Vibration Dose Values are assessed (VDVs are defined and their application to occupants of buildings is discussed in BS 6472).
 - To protect buildings from risk of physical damage, for which peak component particle velocities are assessed in accordance with BS 7385.
 - To protect particularly vibration-sensitive equipment and processes from damage or disruption, for which peak component acceleration, velocity or displacement are assessed as appropriate to each process or item of equipment.
- 5.3.6 No receptors were identified in the Environmental Statement that house especially vibration sensitive equipment or processes. For the majority of receptors both disturbance of occupants and the need to protect against building damage apply, and in these cases the contractor will evaluate the criteria set out in later paragraphs of the CoCP separately. In establishing criteria, controls and working methods, the contractor will take account of guidance in BS 6472, BS 5228 and BS 7385.
- 5.3.7 To protect the occupants and users of buildings from disturbance, the contractor will use best practicable means to control vibration levels so that the Vibration Dose Values in Table 5.3.7, as measured in accordance with BS 6472, are not routinely exceeded as a result of the works:

Table 5.3.7 Vibration Thresholds

Building Type	Period	VDV (ms^{-1.75})
Eligible Dwellings ¹	07:00 to 23:00	0.40
	23:00 to 07:00	0.20
Educational establishments, offices and similar ²	Over normal daily period of use	0.40
Commercial ³	Over normal daily period of use	0.80

Notes:

- 1 Measured on a normally-loaded floor of any bedroom or living room. For this purpose, eligible dwellings include dwelling houses, residential institutions, hotels, and residential hostels.
- 2 Measured on a normally-loaded floor of areas where people normally work. This category of receiver will include all areas where clerical work, meetings and consultations are regularly carried out e.g. Doctors' surgeries, day-care centres but not shop floors of industrial premises.
- 3 Measured on a normally-loaded floor of areas where people normally work. Commercial premises include retail and wholesale shops.

- 5.3.8 The contractor will note that potential vibration impacts on buildings are a concern to adjacent communities. To protect against building damage the threshold for peak particle velocity generated by continuous construction of the Project will be 5 millimetres/second measured at the foundations of the property closest to the operations being carried out. Where construction work is intermittent, the threshold for peak particle velocity generated will be 10 millimetres/second.

Assessment of Noise and Vibration Effects

- 5.3.9 As explained in paragraph 5.2.5 of this CoCP, the contractor will undertake an assessment of the likely noise and vibration levels associated with construction of the Project which will be submitted to the Employer's Representative for approval. The assessment will be undertaken using the same methodology described in the Environmental Statement (in accordance with BS 5228: Part 1 and Part 2: 2009) with the basis for identifying impacts and effects being exceedance of the relevant Assessment Category noise level.
- 5.3.10 The contractor will include, as a minimum, details of the following in the assessments submitted to the Employer's Representative for approval:
- The construction activities covered by the assessment and construction methods to be used.
 - The best practicable means methods to minimise noise and vibration.
 - Mitigation to be provided to comply with this CoCP and achieve residual effects that are no worse than those defined in the Environmental Statement and RIAAs (that includes for example the commitments to employ best practicable means to minimise work at night and not to undertake percussive piling at night).
 - An assessment of the predicted noise and vibration levels during construction, including maximum noise levels (refer also to Section 5.4 of this CoCP).
 - Appropriate additional mitigation which may be necessary to minimise noise and vibration effects, which will, where necessary, include noise insulation or temporary re-housing as described in this CoCP.
 - The proposed noise and vibration monitoring to be undertaken.

5.4 Maximum Noise Levels

- 5.4.1 The contractor will identify, as part of its assessments that cover activities to be undertaken during the evening and night time, those construction activities covered by each assessment that could give rise to significant impulsive noise events and the mitigation, or management processes, in accordance with best practicable means to minimise the impulsive noise.
- 5.4.2 The contractor will, as part of its assessments, provide forecasts for maximum noise levels for construction methods that generate loud and regular impulsive noise (e.g. percussively driven piles) where it is practicable to do so (i.e. where source data is available to support calculations). The contractor will set out in its assessments mitigation to ensure, subject to best practicable means, that the maximum noise levels generated by the construction activity fall within the levels set out in Table 5.4.1a and Table 5.4.1b below.
- 5.4.3 For short term programme critical works (e.g. demolition of the bridges over existing roads) the Employer's Representative, in consultation with the Noise Liaison Group, may approve works where the forecast or expected maximum noise levels are likely to exceed those defined in Table 5.4.1a and Table 5.4.1b below. In such cases, information will be provided to local residents in advance of the approved works explaining the nature, duration and likely noise impact of the works.

5.4.4 Where measured levels are identified as exceeding, or being likely to exceed, the relevant maximum noise level criterion from Table 5.4.1a and Table 5.4.1b below and it is confirmed that the works being undertaken as part of the scheme are the source of the noise, then the contractor will be required to undertake a further review of the best practicable means employed for the activity to minimise noise. At night, the contractor will be required to investigate the exceedance or likely exceedance immediately, report this and the findings of the review to the Employer's Representative and relevant local authority and implement any further mitigation identified as being necessary as soon as is reasonably practicable. At other times, the same actions will be taken except that the review will be reported within 3 days. Where the exceedance coincides with a noise complaint, then the contractor will implement any additional mitigation identified by the investigation before the next shift when the relevant activity will be undertaken again (e.g. if the maximum level exceedance and complaint occur at night then the additional mitigation will be implemented by the contractor before the same works can be undertaken at night again).

5.4.5 Whilst undertaking the investigations, the contractor will be permitted to continue construction works provided the relevant criterion in Table 5.4.1a or Table 5.4.1b overleaf is not exceeded by more than 5dB(A) unless instructed otherwise by the Employer's Representative. The Employer's Representative will consider whether best practicable means are being used to minimise noise and take appropriate consideration of any advice provided by the Noise Liaison Group in making his determination.

5.4.6 The Employer's Representative will consider the report provided by the contractor on the investigation of any exceedance or likely exceedance of the relevant maximum noise levels, including taking appropriate consideration of any advice provided by the Noise Liaison Group. Where it is accepted by the Employer's Representative following this consideration that:

- an activity will significantly exceed the Category C maximum noise levels;
- the resulting maximum noise levels would seriously affect the enjoyment of property for a substantial period of time; and
- there is no additional best practicable means mitigation that could be implemented at source to avoid an ongoing exceedance.

then the contractor will be required to consider additional mitigation at the receptor consistent with the measures set out in this CoCP (e.g. provision of noise insulation or temporary re-housing) and provide such mitigation if agreed with the owner and occupier of the receptor.

Table 5.4.1a Maximum Noise Levels – Main Crossing

Period (refer to CoCP)	Assessment time	Assessment Category					
		A		B		C	
		$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}
Night	1 hr	45	65	50	70	55	75
Evening	1 hr	55	75	60	80	65	85
Day ^(a)	12 hr	65	85	70	90	75	95

Note (a): For percussive piling permitted where it is shown to be best practicable means, a criterion of 96 dBL_{Amax} will apply in all daytime Assessment Categories. Duration of such operations may need to be controlled in accordance with the relevant $L_{Aeq,T}$ criterion

Table 5.4.1b Maximum Noise Levels – Road Sections

Period (refer to CoCP)	Assessment time (T)	Assessment Category					
		A		B		C	
		$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}
Night	1 hr	45	65	50	70	55	70
Evening	1 hr	55	75	60	80	65	85
Weekday	11 hr	65	85	70	90	75	95
Saturday	10 hr	65	85	70	90	75	95

Notes for Tables 5.4.1a and 5.4.1b:

- (a) Category A: are threshold values to use when ambient noise levels (rounded to the nearest 5 dB) are less than the category A L_{Aeq} values.
- (b) Category B: are values to use when ambient noise levels (rounded to the nearest 5 dB) are the same as category A L_{Aeq} values.
- (c) Category C: are values to use when ambient noise levels (rounded to the nearest 5 dB) are higher than category A L_{Aeq} values.
- (d) Shaded parts of the tables are criteria in the Environmental Statement used to identify noise impacts and significant adverse noise effects.
- (e) All L_{Amax} noise levels are $L_{Amax,F}$ (Fast time response).
- (f) Measured exceedence of maximum noise level thresholds triggers additional review of Best Practicable Means as defined in this Annex.
- (g) All noise levels are measured 1m from windows in the façade of a noise sensitive receptor facing the construction works

5.4.7 The Noise Liaison Group may review the maximum noise level criteria set out in Table 5.4.1a and 5.4.1b, particularly at the start of each new phase of major construction activities, and if agreed by the Noise Liaison Group revised maximum noise level criteria may be set. The review will take account of matters including, but not limited to:

- noise complaints received;
- the correlation between noise events, maximum noise levels and any complaints;
- the need to minimise ‘false triggering’ of mitigation reviews;
- best practicable means; and
- the need to minimise overall noise exposure (e.g. balancing maximum noise levels with the duration of the relevant works).

5.5 Noise and Vibration Management Plan

5.5.1 As explained in Section 1.5 of this CoCP, the contractor’s EMP will include a Noise and Vibration Management Plan which will describe measures to be implemented to control and mitigate noise and vibration during construction together with details regarding monitoring systems to be employed during construction. The Noise and Vibration Management Plan will include the following, as appropriate:

- A noise and vibration policy statement setting out the contractor’s commitment to avoiding unnecessary noise and vibration and mitigating noise and vibration levels during construction of the Project.

- The management processes to be implemented in planning and undertaking all construction activity to ensure that best practicable means are employed to minimise noise (including vibration).
- A plan identifying residential buildings and other sensitive receptors, including those identified in the RIAAs, which may be affected by noise and vibration due to construction work.
- A noise and vibration monitoring protocol including a schedule of noise and vibration monitoring locations and stages during construction of the project when monitoring will be undertaken.
- The procedure for measuring construction noise and vibration levels at buildings and other sensitive receptors adjacent to the works.
- The procedure for monitoring workers' exposure to noise and vibration.
- The conditions under which the contractor will provide additional mitigation at buildings and other sensitive receptors adversely affected by noise or vibration despite the use of best practicable means and the procedures for provision of such mitigation.
- Details of site hoardings, screens or bunds which will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features.
- An inspection schedule for monitoring construction plant sound power output levels.

5.6 Local Authority Consent

- 5.6.1 As explained in paragraphs 5.2.5 and 5.3.9 of this CoCP, the contractor will undertake assessments of the likely noise and vibration levels associated with all construction activities required for the Project and will submit the assessments to the Employer's Representative for approval before the relevant construction activity can be commenced.
- 5.6.2 If the contractor's assessment predicts residual noise effects greater than those identified in the Environmental Statement based on the criteria in Table 5.3.3 of this CoCP and is accepted by the Employer's Representative following consultation with the Noise Liaison Group, the contractor will additionally seek prior written consent from the relevant local authority. The contractor will only be permitted to seek local authority consent if the related assessment has been accepted by the Employer's Representative.
- 5.6.3 The contractor will submit an application for local authority consent at least 28 days before the programmed start of the relevant construction activity. The form of the consents and template for the applications will be agreed with the Noise Liaison Group.
- 5.6.4 In making an application for local authority consent, the contractor will provide such information as may be required by the local authority and will demonstrate that:
- it is not reasonably practicable to carry out the work within the threshold levels set out in this CoCP;
 - the contractor will use best practicable means to control or limit noise during construction;

- the contractor has considered all mitigation measures and has implemented or will implement appropriate measures prior to commencing the works to which the application relates;
- all relevant parties have been consulted; and
- all alternative means to reduce the amount of work to be undertaken outwith normal working hours has been explored.

5.7 Waterborne Noise

- 5.7.1 The contractor will plan in advance the timing and methods of any construction activity that could give rise to levels of waterborne noise in the Firth of Forth which could cause significant noise effects and undertake the works in line with the RIAAs in relation to:
- undertaking the works outside of migration periods for the key species (e.g. salmonids, lamprey spp.); or
 - maintaining the level of noise over at least half the width of the Forth (at low tide) below that which would give rise to any significant reaction from the marine species of interest to enable marine species of interest to pass the area.
- 5.7.2 In the second case, the contractor will provide other mitigation as described in the RIAAs such that the specific species may move to the 'protected' zone(s) of the Forth in advance of the works being undertaken.
- 5.7.3 The contractor will also comply with the requirements of Section 10.3 of this CoCP relating to ecology and the RIAAs with regards to noise levels and refer to paragraphs 1.9.5 and 1.9.6 of this CoCP regarding the Appropriate Assessments and provision of mitigation measures.

5.8 Vibration

- 5.8.1 To protect rail and utility assets from damage induced by vibration, the contractor will consult with Network Rail and utility statutory undertakers regarding vibration limits, monitoring and notification requirements for construction works.
- 5.8.2 The contractor will undertake surveys of buildings adjacent to the works as described in Section 5.2 of this CoCP. The contractor will notify and consult with the Employer's Representative and the relevant local authority regarding any works predicted to generate peak component particle velocities above 10 millimetres/second. Where it is agreed that there is no reasonable or practicable means to reduce predicted or measured vibration then the contractor will agree with the Employer's Representative and local authority monitoring for vibration and strain induced in the building during the works. The contractor will also seek to agree with occupiers of properties any additional reasonable and practicable mitigation to be provided for occupants. For residential properties this may be linked to the discretionary measures available under the Land Compensation (Scotland) Act 1973 as described in paragraph 5.2.18.
- 5.8.3 The contractor will consider in the risk assessment described in Section 5.2 of this CoCP buildings within which activities may be undertaken which are especially sensitive to vibration. The contractor will identify these properties in the Noise and Vibration Management Plan and appropriate construction methodologies, vibration

limits, protective measures, survey and monitoring requirements for any relevant vibration sensitive buildings will be developed.

5.9 Monitoring

5.9.1 The contractor will undertake such monitoring as is necessary to facilitate compliance with the Environmental Statement and the other requirements of this section of the CoCP, including any monitoring which may be required by the Noise Liaison Group. The monitoring programme will be set out in the Noise and Vibration Management Plan.

5.9.2 The contractor will ensure that appropriate monitoring is undertaken by the Ecological Clerk of Works and a Marine Mammal Observer (refer to paragraphs 10.2.11, 10.3.9 and 10.7.2) in relation to noise and vibration due to construction activities which are covered in the RIAAs referred to in paragraphs 1.9.5 and 1.9.6.

5.9.3 The contractor will undertake noise and vibration monitoring during activities for which consent is requested from local authorities as set out in Section 5.6 of this CoCP and will include a description of the monitoring proposed in the consent application.

5.9.4 As a minimum, attended monitoring by competent acoustic specialists will be undertaken at the start of each new phase of work. This is to confirm that any noise generated is in line with the assessment approved by the Employer's Representative (or local authority consent where relevant). Monitoring will then be undertaken by a mixture of continuous unattended monitoring and further short term attended monitoring over the duration of the construction activity to assure ongoing compliance with the approved assessment / consent where relevant.

5.9.5 Monitoring reports on noise and vibration will be prepared covering periods of not more than one month and will be published on the project website, in accordance with paragraph 1.8.11 of this CoCP, no later than the end of the subsequent monitoring period.

5.10 References

- BS 5228: 2009 Noise and Vibration Control on Construction and Open Sites, British Standards Institution
- BS 6472:2008 Guide to evaluation of human exposure to vibration in buildings, British Standards Institution
- BS 7385: Part 2:1993 Evaluation and Measurement for Vibration in Buildings, Part 2 Guide to Damage Levels From Groundborne Vibration, British Standards Institution
- Control of Pollution Act 1974
- Environmental Protection Act 1990, as amended
- Land Compensation (Scotland) Act 1973
- Nedwell, J. Lovell, J. Turnpenny, A. (2005). Experimental validation of a species-specific behavioural impact metric for underwater noise. J. Acoust. Soc. Am., 118 (3).
- Nedwell J.R, Turnpenny A.W.H, Langworthy J. and Edwards B. (2003) 'Measurements of underwater noise during piling at the Red Funnel Terminal,

Southampton, and observations of its effect on caged fish'. Subacoustech Report Reference: 558R0207, October 2003.

- Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings'
- The Control of Noise at Work Regulations 2005
- The Control of Vibration at Work Regulations 2005
- The Noise Insulation (Scotland) Regulations 1975

6 Dust and Air Pollution

6.1 Objective

- 6.1.1 To carry out the works in such a way that emissions of dust and other pollutants including odour are limited and that best practicable means are employed to avoid the creation of a statutory nuisance and risks to human health and to avoid unnecessary impacts on sensitive habitats.

6.2 Dust and Air Pollution

- 6.2.1 A number of construction activities may give rise to dust and air pollution, including:

- pollution caused by construction vehicles;
- transportation and storage of materials;
- use of haul routes;
- demolition activities;
- excavations and earthworks construction;
- drilling, blasting and grouting works;
- processing and crushing rock for reuse in the works; and
- operation of the construction site or undertaking construction activities which results in odours being generated from, for example, smoke, fumes or gases.

- 6.2.2 Dust and air pollution, including odours, can cause nuisance affecting properties and the public adjacent to a construction site and can also adversely affect other environmental receptors including watercourses and ecological receptors. In addition there are statutory objectives in relation to nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀) which have known health impacts.

- 6.2.3 Section 79 of the Environmental Protection Act 1990 defines a number of factors relating to dust and air pollution which constitute a statutory nuisance. This includes:

- smoke emitted from premises so as to be prejudicial to health or a nuisance;
- fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;
- any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance; and
- any accumulation or deposit which is prejudicial to health or a nuisance.

- 6.2.4 The contractor has an obligation under the Environmental Protection Act 1990 to use best practicable means to prevent or counteract the effects of any nuisance. The contractor will use best practicable means in this regard, including preparing and implementing a Dust and Air Pollution Management Plan to set out the controls to be implemented to limit dust and air pollution due to the works.

- 6.2.5 Section 6.3 of this CoCP sets out measures to be covered in the Dust and Air Pollution Management Plan to prevent or counteract the effects of nuisance caused by dust and air pollution.

- 6.2.6 The Scottish Ministers will consider at their discretion applications supported by evidence for temporary rehousing from occupiers who may have special circumstances, such as a medical condition which will be seriously aggravated by construction dust or air pollution, and provide temporary housing where it is demonstrated that this is necessary. Temporary rehousing will be considered in accordance with this paragraph and provided under Part II, section 26 of the Land Compensation (Scotland) Act 1973.
- 6.2.7 The contractor will comply with the appropriate authorisation procedures for any plant requiring a permit under The Pollution Prevention and Control (Scotland) Regulations 2000, for example, for mobile crushing or concrete batching plant.

6.3 Dust and Air Pollution Management Plan

6.3.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Dust and Air Pollution Management Plan which will describe the dust and air pollution control measures to be used during the construction works. The Dust and Air Pollution Management Plan will include the following as appropriate:

- Reference to the general site management procedures contained in the Area Management Plan (see Section 3 of this CoCP) relevant to limiting dust and air pollution.
- Controls and measures to be implemented to prevent or counteract the effects of nuisance caused by construction works, including those factors listed in paragraph 6.2.3 of this CoCP and to avoid significant adverse effects of emissions of NO₂ and PM₁₀ in relation to compliance with local air quality objectives in the Air Quality (Scotland) Regulations 2000 and Air Quality (Scotland) Amendment Regulations 2002.
- Dust and air pollution monitoring measures to be employed during construction of the Project.

6.4 Site Management

6.4.1 Obligations for the contractor in relation to using best practicable means to prevent or counteract the effects of any nuisance are covered in Section 6.2.

6.4.2 The requirements of the Area Management Plan are set out in Section 3 of this CoCP. Matters to be covered in the Area Management Plan which are relevant with regard to limiting the potential for dust and air pollution impacts due to construction activities include those relating to:

- smoking areas;
- open fires;
- waste;
- rubbish;
- fencing and hoardings;
- food waste;
- site accesses and accesses to site offices/compounds; and
- clearance of the site.

- 6.4.3 The contractor will plan the site layout to locate machinery and dust-causing activities away from sensitive receptors, where reasonably practicable. The contractor will also use appropriate methods, such as the erection of hoardings or other barriers along the site boundary, where appropriate, to mitigate the spread of dust to any sensitive buildings or other environmental receptors.

6.5 Construction Plant and Vehicles

- 6.5.1 The Dust and Air Quality Management Plan will describe the measures to be implemented to limit emissions from construction plant and vehicles, including the following, as appropriate:
- The contractor will operate construction plant in accordance with the manufacturer's written recommendations.
 - All vehicles and plant will be switched off when not in use.
 - Vehicle and construction plant exhausts should be directed away from the ground where possible and be positioned at a height to facilitate appropriate dispersal of exhaust emissions.
 - Enclosing, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used.
 - The movement of construction traffic around the site will be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the Project.
 - Construction plant will be located away from site boundaries which are close to sensitive receptors where reasonable and practicable.
 - The contractor will design site access points as required by Section 4.6 of this CoCP to avoid queuing traffic adjacent to access points. Parking of vehicles will be controlled in accordance with Section 4.6 of this CoCP.
 - The contractor will avoid use of diesel or petrol powered generators by using mains electricity or battery powered equipment where reasonable and practicable.
 - All non-road mobile machinery will use ultra low sulphur tax-exempt diesel where available. Machinery with power outputs of over 37kW will be fitted with appropriate exhaust after-treatment from approved Energy Saving Trust list (achieving filtration efficiency of over 85%).
 - Cutting and grinding operations will be conducted using equipment and techniques which reduce emissions and incorporate appropriate dust suppression measures.
 - The contractor will employ appropriate measures to keep roads and accesses clean, as required in accordance with Sections 3.5 and 4.6 of this CoCP.
 - The contractor will keep vehicle, plant and equipment maintenance records on site and these will be made available to the Employer's Representative upon request.

6.6 Transportation, Storage and Handling of Materials

6.6.1 The Dust and Air Quality Management Plan will describe the measures to be implemented to limit pollution due to the transportation and storage of materials, including the following, as appropriate:

- The contractor will employ appropriate measures, such as covering materials deliveries or loads entering and leaving the construction site by a fixed cover or sheeting appropriately fixed and suitable for the purposes of preventing materials and dust spillage. This will apply to the transport of materials by road, rail or waterway.
- Vehicles transporting materials within or outside the construction site will not to be overloaded.
- Where appropriate, stockpiles and mounds will be kept away from the site boundary, sensitive receptors, watercourses and surface drains and sited to take into account the predominant wind direction.
- Stockpiles and mounds will be at a suitable angle of repose and avoid sharp changes in shape to prevent material slippage.
- Materials stockpiles will be enclosed or securely sheeted or kept watered by the contractor, as appropriate.
- The contractor will cover long-term stockpiles, which give rise to a risk of dust or air pollution, with appropriate sheeting or will stabilise the surfaces of the stockpiles.
- Where reasonably practicable, and where appropriate storage in line with the requirements for covering materials set out above is not implemented, fine dry material (under 3mm particle size) will be stored inside buildings or enclosures.
- Mixing of large quantities of concrete or bentonite slurries will be undertaken in enclosed or shielded areas.
- The number of handling operations for materials will be kept to the minimum practicable.
- The contractor will maintain materials handling areas to constrain dust emissions. The contractor will use appropriate measures such as watering facilities to reduce or prevent escape of dust from the site boundaries.
- Mixing of grout or cement-based materials will be undertaken using a process suitable for the prevention of dust emissions.

6.7 Haul Routes

6.7.1 As explained in Section 4.6 of this CoCP, the contractor will provide haul routes through the works for use by construction vehicles to minimise the need to use public roads.

6.7.2 The Dust and Air Quality Management Plan will describe the measures to be implemented to construct and maintain haul routes, including the following, as appropriate:

- The contractor will agree haul routes with the Employer's Representative prior to their construction and use and will advise the Employer's Representative of

the intended level of trafficking for haul routes. The surfacing of haul routes will be appropriate to avoid dust emissions as far as practicable, taking into account the intended level of trafficking.

- When in use, the contractor will maintain the surface of haul routes in a condition appropriate to the surface material and for the purposes of suppressing dust emissions.
- The contractor will inspect haul routes regularly and promptly repair haul routes if required.
- Where reasonable, the contractor will reuse haul route surfacing materials where the locations of haul routes change during the course of construction.
- The contractor will provide areas of hard-standing at site access and egress points to be used by any waiting vehicles.
- The contractor will clean and suppress dust on haul routes and in designated vehicle waiting areas by spraying with water or using other appropriate measures. The frequency of cleaning will be suitable for the purposes of suppressing dust emissions from the site boundaries.
- The contractor will impose and enforce appropriate speed limits on haul roads for safety reasons and for the purposes of suppressing dust emissions.

6.8 Demolition Activities

6.8.1 The Dust and Air Quality Management Plan will describe the measures to limit dust pollution from demolition activities, including the following, as appropriate:

- Blasting works will be kept to the minimum practicable taking consideration of the requirements of the design and programme requirements of the Project. See also Section 5.2 of this CoCP.
- The contractor will spray any buildings or structures to be demolished with water as necessary, prior to and during demolition.
- Appropriate screening of buildings or structures to be demolished will be used.
- Waste chutes will be shielded and skips covered and secured.
- Where reasonable, the contractor will avoid prolonged storage of waste materials on site. Storage of any waste materials on site will comply with the requirements of this CoCP relating to storage of materials.
- Removal of waste from the site will comply with the requirements of this CoCP relating to the transportation of materials.

6.9 Excavations and Earthworks Activities

6.9.1 The Dust and Air Quality Management Plan will describe the measures to limit dust pollution from excavations and earthworks activities, including the following, as appropriate:

- Topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation.

- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the minimum practicable to control dust generation associated with the fall of materials.
- The contractor will suppress dust emissions by spraying with water or using other appropriate measures.
- The contractor will compact deposited materials, with the exception of topsoil, as soon as possible after deposition.
- Soiling, seeding, planting or sealing of completed earthworks will be undertaken by the contractor as soon as reasonably practicable following completion of the earthworks.

6.10 Drilling, Blasting and Grouting Activities

6.10.1 The Dust and Air Quality Management Plan will describe the measures to limit dust pollution associated with drilling, blasting and grouting activities, including the following, as appropriate:

- Blasting works will be kept to the minimum practicable taking consideration of the requirements of the design and programme requirements of the Project.
- Measures such as enclosing, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used, as appropriate.
- Where appropriate dust will be extracted at source to prevent exposure of workers to excessive dust inhalation.
- Where drilling and blasting is used for the purposes of excavating within rock, the exposed surfaces will be watered to limit dust emissions as necessary.
- Materials used for grouting, such as cements or pulverised fuel ash, will be stored in accordance with the requirements of this CoCP for materials storage to prevent them becoming an airborne hazard.
- Mixing of grout or cement based materials will be undertaken using a process suitable for the prevention, as far as reasonably practicable, of dust emissions.
- The contractor will implement appropriate measures to comply with Scottish Development Department Planning Advice Note 50 [PAN 50] Annex D The Control of Blasting at Surface Mineral Workings.

6.11 Processing, Crushing, Cutting and Grinding Activities

6.11.1 The Dust and Air Quality Management Plan will describe the measures to limit dust pollution associated with processing and crushing rock for use as aggregate or other materials within the works, including the following, as appropriate:

- The contractor will comply with the requirements of this CoCP relating to construction plant, transportation and storage of materials.
- Drop heights from excavators to crushing plant, and from crushing plant to stockpiles will be kept to the minimum practicable to control dust generation associated with the fall of materials.

- 6.11.2 Appropriate measures will be used for any processing, crushing, cutting and grinding activities as required to limit dust pollution.

6.12 Monitoring

6.12.1 The Dust and Air Quality Management Plan will describe the inspection and monitoring procedures to be implemented to monitor the effectiveness of measures to prevent dust and air pollutant emissions and to avoid detrimental effects on the health of workers due to exposure to dust and air pollution. The Dust and Air Quality Management Plan will also describe the measures to be implemented to counteract the effects of nuisance caused by dust and air pollution.

6.12.2 The contractor will consult with the relevant local authorities regarding the monitoring procedures to be implemented. Monitoring procedures will include the following, as appropriate:

- Reference to the Area Management Plan (see Section 3 of this CoCP) with regard to site inspections covering the establishment of operation of the construction site.
- Inspection procedures for areas adjacent to the construction site to monitor any dust and air pollution which may be generated despite the use of best practicable means to prevent dust and air quality emissions, with particular focus on sensitive sites such as residential areas and schools.
- Reference to inspection and maintenance schedules for construction vehicles, plant and machinery.
- Inspection procedures relating to the level of trafficking, use and condition of haul routes.

6.13 References

- BS 6187:2000 Code of Practice for Demolition, British Standards Institution
- Clean Air Act 1993
- Environmental Protection Act 1990, as amended
- GLA and London Councils (2006) Best Practice Guidance: The control of dust and emissions from construction and demolition
- Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings'
- Pollution Prevention and Control Act 1999
- Pollution Prevention and Control (Scotland) Regulations 2000, as amended
- Process Guidance Note PG 3/1 (04) Secretary of State's Guidance for Blending, Packing, Loading, Unloading and Use of Bulk Cement, Department for Environment, Food and Rural Affairs, 2004
- Process Guidance Note PG 3/16 (04) Secretary of State's Guidance for Mobile Crushing and Screening
- The Air Quality (Scotland) Regulations 2000, as amended
- The Air Quality (Scotland) Amendment Regulations 2002

- The Control of Substances Hazardous to Health Regulations 2002, as amended
- The Non-Road Mobile Machinery (Emissions of Gaseous and Particulate Pollutants) (Amendment) Regulations 1999, as amended

7 Geology, Soils and Land Affected by Contamination

7.1 Objective

7.1.1 To prevent, contain, or limit adverse environmental impacts and health and safety risks arising from construction on or adjacent to land affected by contamination or disturbance of contaminated soils during construction activities, including limiting adverse impacts on designated geological features.

7.2 Geology, Land Contamination and Waste Management Plan

7.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Geology, Land Contamination and Waste Management Plan which will describe the procedures and measures to be implemented to manage construction works, including the following:

- works that may affect mine workings or designated geological sites;
- construction activities on land which may be contaminated;
- the handling, storage, transfer and disposal of waste materials and contaminated materials (see Section 8 of this CoCP);
- the reuse or recycling of waste material (see Section 8 of this CoCP); and
- works that may affect private water supplies.

7.3 Mitigation of Potential Impacts on or due to Works in Geology and Soils

7.3.1 Construction of the Project may affect the Ferry Hills Site of Special Scientific Interest (SSSI), which is of geological interest. The Geology, Land Contamination and Waste Management Plan will set out procedures agreed in consultation with SNH for any works which may affect the SSSI, which may include procedures for the appropriate recording of geological formations, inspections and complementary rock mapping of the rock face. Consent for SSSI works described in the Environmental Statement will be deemed as part of the Parliamentary Bill process.

7.3.2 There is potential for construction works to be undertaken over abandoned mine workings. The Geology, Land Contamination and Waste Management Plan will set out the measures to be implemented, including consultations with the Coal Authority and SEPA, as appropriate, in relation to undertaking works over abandoned mine workings. If necessary, the contractor will undertake a detailed assessment and risk assessment of the potential impact of drilling and grouting to consolidate abandoned mine workings on groundwater and ground gas migration and ground movements to identify appropriate measures required to mitigate potential environmental impacts and health and safety risks. Matters relating to dust and air quality due to drilling and grouting activities are covered in Section 6 of this CoCP.

7.3.3 The Geology, Land Contamination and Waste Management Plan will set out the measures to be implemented to assess and control the risks to workers in excavations where the presence of ground gas may lead to confined space risks, or due to works associated with mine workings where risks associated with ground gas may be present. This will include compliance with CIRIA Report C665. If significant ground gas issues are identified, appropriate monitoring will be undertaken and/or appropriate ground gas protection measures provided by the contractor.

- 7.3.4 The Geology, Land Contamination and Waste Management Plan will set out the measures to be implemented by the contractor, including, as appropriate, undertaking a risk assessment, monitoring groundwater levels and undertaking structural or dilapidation survey of buildings or structures adjacent to the works where there may be potential settlement risks or a risk of lateral ground movements which may damage structures.
- 7.3.5 Approaches and mitigation measures relevant to construction activities and handling of soils relating to works which may affect agricultural interests and reuse of soils within the landscape works are covered in Sections 11 and 13 of this CoCP respectively. An assessment of soils to be reused will be undertaken by the contractor to identify any potential risks posed to the water environment from reused soils to be used in embankments.
- 7.3.6 This section of the CoCP requires a number of assessments or risk assessments to be undertaken. Where determined by these assessments, appropriate mitigation will be provided to ensure the impact of the construction of the scheme is in line with Section 1.9 of this CoCP.

7.4 Construction on or adjacent to Land Affected by Contamination

- 7.4.1 Where land affected by contamination is identified a management plan will be prepared by the contractor to facilitate compliance with relevant handling and disposal legislation. Disposal of waste and contaminated materials is covered in Section 8 of this CoCP.
- 7.4.2 The section of the Geology, Land Contamination and Waste Management Plan dealing with land affected by contamination will set out the control measures to be implemented by the contractor for construction activities on or adjacent to the land. This will include the following, as appropriate:
- Procedures to be followed, including appropriate watching briefs, to identify areas within the Project where land contamination may be encountered.
 - Information relating to historical site research.
 - Carrying out appropriate site investigations to determine the extent and type of contaminants present.
 - Identification of potential sources of contamination, pathways connecting contamination sources and receptors capable of being harmed, and assessment of the risk of harm to receptors.
 - Sealing of existing pathways through services (e.g. land drains) affected during construction.
 - Lining of drainage trenches to prevent the ingress of contaminated groundwater or lateral migration through granular backfill.
 - Consultation with the relevant local authorities and SEPA regarding control or protection measures to be implemented to deal with identified risks, including appropriate techniques for excavating contaminated material and the control of contaminants and discharges in their insitu or mobilised form, for solids, liquids, gas and leachate; and appropriate health and safety and precautionary measures.
- 7.4.3 Asbestos has been identified during site investigations adjacent to St Margaret's Marsh. The control measures set out in the Geology, Land Contamination and

Waste Management Plan will include procedures appropriate for construction works associated with asbestos. The contractor will observe the exposure limits and measurement methods for asbestos, set out in HSE Guidance Note EH 10 1988 and will comply with HSE Guidance Note MS13 Asbestos 1988, the Health and Safety Commission Approved Code of Practice and Guidance Note Work with Asbestos Insulation and Asbestos Coating 1983 insofar as these are applicable to the construction works.

- 7.4.4 Appropriate control measures relevant to mitigating risks associated with asbestos dust in accordance with the above guidelines will be included in the Dust and Air Quality Management Plan referred to in Section 6 of this CoCP.
- 7.4.5 Waste materials, known to contain some heavy metals and possibly other contaminants, have been identified during investigations in St Margaret's Marsh. Appropriate procedures and control measures will be developed by the contractor, including procedures for any site investigations required as set out in Section 7.5 of this CoCP, and methods appropriate for construction activities on or adjacent to potentially radioactive contamination.
- 7.4.6 The contractor will consult with local authorities and SEPA regarding works in relation to land affected by contamination to support fulfilment of their obligations set out in Planning Advice Note 33 Development of Contaminated Land. Any remedial action undertaken in relation to land affected by contamination will be carried out under the appropriate remediation licensing.
- 7.4.7 Where piling works are undertaken in areas of land affected by contamination, the contractor will adhere to appropriate guidance including the Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, National Groundwater and Contaminated Land Centre Report NC/99/77.
- 7.4.8 The measures set out in the Geology, Land Contamination and Waste Management Plan will apply equally to land used for the construction and land used temporarily, for example for site offices and works compounds.

7.5 Site Investigation

- 7.5.1 The contractor will use adequate site investigation data to enable an assessment of the possible adverse effects arising due to land affected by contamination, development of appropriate construction methods and design of appropriate mitigation to be undertaken. The contractor will undertake additional site investigation work if necessary and this will cover the following, as appropriate:
- Historical and current land uses.
 - Historical and current activities, processes and waste products.
 - Geological and hydrogeological setting.
 - Soils and groundwater sampling.
- 7.5.2 Site investigations will be undertaken in accordance with the following, as appropriate:
- Planning Advice Note 33 [PAN 33] Development of Contaminated Land.

- Protection of Workers and the General Public During the Development of Contaminated Land.
- BS 10175 Investigation of Potentially Contaminated Sites.
- BS 5930 Code of Practice for Site Investigations.
- the Site Investigation Steering Group publication, Guidelines for the safe investigation by drilling of landfills and contaminated land.

7.5.3 The contractor will also consult with the relevant local authorities and SEPA regarding site investigations for areas of land affected by contamination and, where appropriate, the risk to ground and surface water resources, processes and abstractions will be assessed.

7.6 Private Water Supplies

7.6.1 The contractor will undertake a risk assessment associated with excavation or blasting work impacts on aquifers and private water supplies. Where required, the contractor will use low explosive loading densities for any blasting works following relevant British Standards including BS5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 2- Vibration), and the Scottish Development Department Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings'.

7.6.2 The contractor will contact the owners and occupiers of properties where risks are identified as soon as possible after completing the risk assessment. The consultation will be suitably far in advance of the construction works being undertaken to enable an appropriate alternative water supply to be provided.

7.6.3 The contractor will repair or replace any water supply pipes damaged during construction as soon as possible so that parties are not without water. The contractor will ensure that adequate provisions of water are made during any disruption of supplies.

7.7 Monitoring

7.7.1 The contractor will prepare and implement a gas monitoring procedure as appropriate due to the presence of areas of landfill, made ground, industry sites, quarries and naturally occurring gassing strata.

7.7.2 The Geology, Land Contamination and Waste Management Plan will set out appropriate controls to support adherence to the procedures relating to working on or adjacent to land affected by contamination.

7.8 References

- Asbestos: Exposure limits and measurement of airborne dust concentrations, Guidance Note EH 10 1988, Health and Safety Executive
- Asbestos: Medical Guidance Note Guideline Note MS13 Asbestos 2005, Health and Safety Executive
- BS 5228: 2009 Noise and Vibration Control on Construction and Open Sites, British Standards Institution

- BS 5930:1999 Code of practice for site investigations, British Standards Institution
- BS 8485:2007 Code of practice for the characterization and remediation from ground gas in affected developments, British Standards Institution
- BS 10175:2001 Investigation of potentially contaminated sites, British Standards Institution
- CIRIA C665 Assessing risks posed by hazardous ground gases to buildings (revised), 2007
- CIRIA Special Publication 32 Construction Over Abandoned Mine Workings, 1984
- Control of Asbestos at Work Regulations 2002
- Environmental Protection Act 1990, as amended
- Ferry Hills SSSI citation (available on SNH SiteLink at <http://www.snh.org.uk/snhi/>)
- Health and Safety Commission Approved Code of Practice and Guidance: Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board
- Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, National Groundwater and Contaminated Land Centre Report NC/99/77, 2001
- Planning Advice Note 33 [PAN 33]: Development of contaminated land
- Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings'
- Protection of Workers and the General Public During the Development of Contaminated Land, Health and Safety Executive, 1991
- Site Investigation Steering Group: Guidelines for the safe investigation by drilling of landfills and contaminated land, 1994
- The Confined Spaces Regulations 1997
- The Control of Substances Hazardous to Health Regulations 2002, as amended

8 Disposal of Waste and Contaminated Materials

8.1 Objective

- 8.1.1 To prevent, contain, or limit adverse environmental impacts and health and safety risks arising from the handling and disposal of waste, including contaminated materials. To maximise, where reasonable, reuse of site-won materials within the construction of the Project and recycling of surplus materials in order to reduce adverse environmental effects associated with disposal off-site.

8.2 Geology, Land Contamination and Waste Management Plan

- 8.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Geology, Land Contamination and Waste Management Plan. In addition to the requirements of Section 7 of this CoCP, the Plan will also describe the procedures and measures to be implemented so that the handling, storage, transfer and disposal of waste materials and contaminated materials, together with the measures to be implemented for the reuse or recycling of waste material are appropriately managed.

- 8.2.2 The Geology, Land Contamination and Waste Management Plan will be prepared in accordance with the following guidance:

- Site Waste Management Plans: Guidance for Construction contractors and Clients.
- Scotland's National Waste Plan.
- Scottish Planning Policy 10 [SPP 10] Planning for Waste Management.
- SEPA's Land Remediation and Waste Management Guidelines.

- 8.2.3 The procedures set out in the Geology, Land Contamination and Waste Management Plan will cover the following, as appropriate:

- Procedures for the classification of all waste.
- Procedures for the recording of the types, quantities and locations of waste materials generated during construction.
- The measures to be implemented to reduce waste generation.
- The measures to be implemented for recycling and/or re-use of spoil material.
- The measures to be adopted for management of waste on site.
- The proposed storage, handling, treatment and disposal procedures for waste.
- The licensing arrangements for waste disposal.
- Details of the waste carriers and off-site disposal sites to be used, including the terms of their respective licenses and details of waste permitted to be transported and received.
- The procedures, such as use of consignment notes, to enable an appropriate audit trail of waste disposal activities to be identified.

- 8.2.4 The contractor will consult with relevant local authorities and SEPA regarding the development of the Geology, Land Contamination and Waste Management Plan.

8.3 Waste and Waste Minimisation

- 8.3.1 The contractor will consider opportunities and implement measures in the design and construction of the Project to reuse waste or surplus materials, as appropriate. The contractor will have regard to the Sustainable Development Policy, as described in Section 1.6 of this CoCP, when considering the reuse of materials within the works.
- 8.3.2 The contractor will provide recycling points at site offices and compounds and arrange for the appropriate disposal of waste to recycling stations.
- 8.3.3 The contractor will manage the disposal of waste material to maximise the environmental and development benefits from the use of surplus material and to reduce the adverse environmental effects and risks associated with disposal off-site.
- 8.3.4 All waste material will be appropriately transported and disposed of by the contractor at licensed tips or designated sites. The contractor will comply with relevant legislation including the Control of Pollution Act 1974, Section 34 of the Environmental Protection Act 1990 and the Waste Management, The Duty of Care, A Code of Practice guidance in this regard.
- 8.3.5 The contractor will obtain any consents or licences necessary for the deposition or disposal of surplus material within the Firth of Forth, including sediments excavated from the bed of the Firth of Forth during construction of the main crossing. The contractor will comply with Part II of the Food and Environment Protection Act 1985 or other prevailing legislation or requirements at the time of construction in this regard.
- 8.3.6 Prior to disposal, the contractor will assess soils in line with Environment Agency Technical Guidance WM2 to determine whether they are hazardous or non-hazardous.
- 8.3.7 The contractor will handle, store and manage waste to contain and limit impacts and avoid nuisance arising from dust and odour in accordance with the requirements of Section 6 of this CoCP. The handling and disposal of waste water will also comply with the requirements of Section 9 of this CoCP.
- 8.3.8 Waste disposal routes will comply with the restrictions on access routes for construction traffic determined in accordance with the requirements of Section 4.7 of this CoCP. The contractor will comply with the requirements of the relevant navigation and harbour authorities regarding the transport of waste on the Firth of Forth.
- 8.3.9 The contractor will obtain any necessary waste management licenses or apply to SEPA for registration of any relevant exemption from waste licensing necessary during construction works.

8.4 Contaminated and Hazardous Materials

- 8.4.1 Mitigation measures to be implemented during construction on or adjacent to areas of land affected by contamination are covered in Section 7 of this CoCP. The Geology, Land Contamination and Waste Management Plan will set out the procedures to be followed for the handling, storage, transfer and disposal of contaminated or hazardous materials to comply with relevant legislation.

- 8.4.2 The handling, storage, transport and disposal of contaminated or hazardous material will comply with the requirements of this Section 8 of the CoCP, as appropriate.
- 8.4.3 Classification of contaminated or hazardous materials will be in accordance with hazardous waste guidance. The contractor will consult with SEPA regarding reuse criteria and sample plans for materials to be reused during construction.
- 8.4.4 The contractor will identify waste which falls within the definition of special waste in relevant legislation, including the Special Waste Regulations 1996, as amended, and implement appropriate handling, storage, transport and disposal measures for special waste in accordance with the regulations and other statutory requirements. This will include waste containing contaminated materials and asbestos.

8.5 Monitoring

- 8.5.1 The contractor will monitor and undertake regular audits of the waste management procedures to facilitate compliance with the Geology, Land Contamination and Waste Management Plan, relevant legislation and the project Sustainable Development Policy (refer to Section 1.6).

8.6 References

- Control of Pollution Act 1974
- Control of Pollution (Special Waste) Regulations 1980, as amended
- Environmental Protection Act 1990, as amended
- Food and Environment Protection Act 1985
- Land Remediation and Waste Management Guidelines, SEPA
- Scottish Planning Policy 10 [SPP10]: Planning for Waste Management
- Site Waste Management Plans: Guidance for Construction contractors and Clients, Department of Trade and Industry, 2004
- Technical Guidance WM2, Interpretation of the definition and classification of Hazardous Waste, Environment Agency, 2008
- The Control of Substances Hazardous to Health Regulations 2002, as amended
- The National Waste Plan 2003, Scottish Environment Protection Agency
- The Special Waste Regulations 1996, as amended
- The Special Waste (Scotland) Regulations 1997, as amended
- The Waste Management Licensing (Scotland) Regulations 1996, as amended
- Waste Management, The Duty of Care, A Code of Practice, Department for Environment, Food and Rural Affairs, 2009

9 Protection of the Water Environment

9.1 Objective

- 9.1.1 To comply with relevant statutory provisions, including any consents required, in respect of the water environment, to protect both physical habitat and morphology and to avoid unacceptable adverse impacts including changes to flow volume, water levels and water quality due to construction.

9.2 Surface Water and Groundwater Management Plan

- 9.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Surface Water and Groundwater Management Plan which will include details of controls to prevent contamination of surface water and groundwater resources, together with monitoring systems to be employed during the construction works and emergency procedures to be implemented in the case of any pollution incidents.
- 9.2.2 The Surface Water and Groundwater Management Plan will include the following, as appropriate:
- A description of watercourses, waterbodies and aquifers which could be affected during construction (including maps and schedules).
 - Maps showing all watercourses, waterbodies, groundwater, licensed abstractions and unlicensed abstractions within 1 km of the Project.
 - Maps identifying sources of potential pollution.
 - A description of the measures to be used to protect surface water and groundwater from pollution.
 - The precautions to be taken when working in the channels of or adjacent to existing watercourses; within, over or adjacent to the Firth of Forth; realigning watercourses; providing new culverts and extending culverts; and timing constraints with regard to in-channel works.
 - Procedures for monitoring groundwater levels and quality at abstraction boreholes and wells to enable adverse effects on quality or levels to be identified.
 - A description of the response procedures to be implemented in the event of works affecting groundwater levels or quality with subsequent adverse effects on abstractions, watercourses, waterbodies or springs.
 - Details, or reference to the Geology, Land Contamination and Waste Management Plan, for methods of dealing with works in areas of potentially contaminated land.
 - A method for dealing with intercepted groundwater containing elevated concentrations of contaminants.
 - Precautions to be taken to prevent damage to services and to avoid pollution during service diversions, excavation and ground penetration.
 - Measures to reduce flood risk due to construction works.
 - Water quality monitoring requirements.

- Reference to the Pollution Incident Response Plan (refer to Section 14 of this CoCP) for emergency procedures to be implemented in the event of a pollution incident.

9.2.3 The Surface Water and Groundwater Management Plan will also set out the measures to be implemented in relation to construction associated with outfalls, including the following, as appropriate:

- Programme restrictions on the construction of outfalls to reduce the risk of scour and erosion around the outfall structures or to the disturbed river bank.
- Programme restrictions on the construction of outfalls in tidal areas and appropriate erosion protection measures to be provided to reduce the risk of scour and erosion during high tides.
- Measures to be provided to prevent sediment being washed into the watercourses.
- Restrictions or controls with regards to excavating within watercourses to limit disturbance to watercourse.

9.2.4 The contractor will appoint an Environmental Clerk of Works to be present on site during construction to supervise the implementation of appropriate environmental safeguards.

9.3 Waste Water and Groundwater

9.3.1 The contractor will consult with SEPA regarding the measures to be implemented to contain and manage surface water run-off from the construction site to prevent deterioration of the water environment and other adverse impacts including changes to flow volume, water levels and water quality. Measures to be implemented will include the following, as appropriate:

- Provision of a suitable construction site drainage system including cut-off ditches or drains and sustainable drainage systems (SUDS), or equivalent, with suitably sized treatment facilities such as settlement or detention basins.
- Use of oil interceptors, if required by SEPA, at site offices and works compounds.
- Obtaining the necessary consents for any soakaway or filtration systems or to enable discharge of surface water run-off from the construction site to watercourses or foul sewers or disposal off-site.
- Appropriate measures such as use of bunds of non-erodable material or silt or sediment fences adjacent to watercourses.
- Implementing a surface water or groundwater monitoring plan, particularly in relation to works which may affect aquifers or drilling works.
- Measures to comply with relevant Pollution Prevention Guidelines (PPG), SEPA's Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods and CIRIA publications (including C532, C648 and C649).

9.3.2 The measures set out in Section 6 of this CoCP to limit adverse dust and air pollution effects associated with construction works will apply equally in relation to limiting the likelihood of polluted surface water run-off being generated.

- 9.3.3 The contractor will comply with BS 6031 Code of Practice for Earthworks regarding the general control of site drainage including, for example, all washings, dewatering, abstractions and surface water run-off, unless otherwise agreed by the Employer's Representative.

9.4 Storage and Control of Oils and Chemicals

- 9.4.1 The contractor will comply with the Water Environment (Oil Storage) (Scotland) Regulations 2006 which apply in relation to storage of any oil-based materials including petrol, diesel, waste and vegetable and plant oil, but excludes uncut bitumen. Above ground fuel and oil storage tanks will also comply with PPG 2: Above Ground Oil Storage Tanks which sets out requirements including those relating to positioning, specification, capacity, secondary containment and ancillary equipment for storage tanks. Where below ground oil storage is proposed, this must comply with SEPA's Code of Practice for Installers, Owners and Operators of Underground Storage Tanks (& Pipelines).
- 9.4.2 Stationary plant used by the contractor will be fitted with measures such as drip trays to retain any leakage of oil or fuel. The contractor will empty trays at regular intervals to prevent overflow.
- 9.4.3 Spillage kits will be stored at key locations on site as set out in the Pollution Incident Response Plan and in particular at refuelling areas. Where possible, spillage kits will also be kept with mobile bowsers.
- 9.4.4 The contractor will comply with PPG 26 Storage and handling of drums and intermediate bulk containers (IBCs) in relation to chemical storage, handling and use.
- 9.4.5 The contractor will consult with the relevant local authorities and SEPA regarding specific requirements in relation to establishing and operating concrete and road surfacing material batching plants on site. Wash water from any batching plants will not be discharged to the water environment without the approval of the relevant authority.

9.5 Control and Management of Foul Drainage

- 9.5.1 The contractor will manage and dispose of foul water and sewage effluents from site facilities complying with PPG 4 Treatment and disposal of sewage and the following measures, as appropriate:
- Containment by temporary foul drainage facilities and disposed off-site by a licensed contractor.
 - Connection to the local foul water and sewage system as agreed with the relevant authorities.
 - Where a foul sewer is not present, appropriate treatment and discharge to a watercourse or soakaway with prior authorisation from SEPA. Any foul drainage discharge outwith the public sewer will require authorisation from SEPA.

9.6 Water Environment (Controlled Activities) (Scotland) Regulations 2005

9.6.1 The contractor will comply with the Water Environment (Controlled Activities) (Scotland) Regulations 2005. The regulations apply to:

- activities liable to cause pollution of the water environment;
- abstraction of water from bodies of surface water or groundwater;
- the construction, alteration or operation of impounding works in bodies of surface water;
- building, engineering or other works in, or in the vicinity of, any body of inland surface water;
- activities connected with any of the activities specified above;
- the direct or indirect discharge, and any activity likely to cause a direct or indirect discharge, into groundwater of the substances listed in Schedule 2 to the regulations; and
- any other activity which directly or indirectly has or is likely to have a significant adverse impact on the water environment.

9.6.2 The regulations do not apply to any activity for which a licence is needed under Part II of the Food and Environment Protection Act 1985 (FEPA). FEPA licences are covered in Section 9.7 and paragraph 8.3.5 of this CoCP.

9.6.3 Applications made by the contractor in accordance with the regulations will require information to be provided regarding construction methods and mitigation measures to be implemented. Where works are required in or adjacent to watercourses, the contractor will provide information regarding the following, as appropriate and as agreed with SEPA:

- Measures to protect fish.
- Measures to deal with flowing water appropriately e.g. temporary diversions, over-pumping.
- Measures to reduce the risk of mobilisation of sediments to an acceptable level.
- Measures to protect banks where they are particularly vulnerable to erosion.
- Measures to undertake diversion of flow back into a channel in a manner that reduces the risk of erosion, with temporary bank stabilisation incorporated if necessary.
- Measures to avoid unnecessary in-stream working.
- Measures to comply with SEPA's Good Practice Guide: Temporary Construction Methods.

9.7 Food and Environment Protection Act 1985

9.7.1 The contractor will comply with Part II of the Food and Environment Protection Act 1985 or other prevailing legislation or requirements at the time of construction regarding the protection of the marine environment. The Act applies in relation to:

- the deposit of substances or articles either in the sea or under the sea-bed; and
- the loading of a vessel, hovercraft, marine structure or floating container with substances or articles for deposit anywhere in the sea or under the sea-bed.

9.7.2 Applications made by the contractor in accordance with the Act or other prevailing legislation or requirements at the time of construction will include appropriate information regarding construction methods and mitigation measures to be implemented. Where works are required in or adjacent to the Firth of Forth the contractor will provide appropriate information as agreed with Marine Scotland, such as:

- measures to be implemented to reduce the risk of pollution to the marine environment including compliance with PPG 14 Marinas and Craft;
- procedures and plant to be used for the excavation or dredging of sediment within the Firth of Forth;
- information regarding proposed disposal or deposition of sediment within the Firth of Forth;
- procedures plant and materials to be used for the construction of the foundations of the main crossing and approach viaducts within the Firth of Forth;
- information as may be necessary to demonstrate compliance with the Environmental Statement, the RIAs referred to in Sections 10.3 and 1.9 and the other provisions of this CoCP; and
- any other information necessary for Marine Scotland to give consideration to the consent in relation to the protection of the marine environment and the prevention of interference with legitimate uses of the sea.

9.7.3 In relation to any dredging works, the contractor will comply with the Environmental Statement, RIAs and the following provisions:

- The contractor will consult with relevant authorities such as the Crown Estates, Forth Ports plc, SNH, SEPA and Marine Scotland, as appropriate, regarding dredging works and disposal of any arisings.
- Disposal of dredgings will be undertaken in an appropriate manner and at an appropriate location having regard to factors including the suitability of the disposal site, the volume and nature of the material to be disposed.

9.8 Flood Risk

9.8.1 Construction activities will be undertaken having regard to the requirements to avoid increasing flood risk. Appropriate measures to prevent, so far as is reasonably practicable, the movement or damage of the works during potential flooding events will be implemented by the contractor.

9.8.2 The contractor will consult with SEPA and make appropriate use of SEPA's Floodline Flood Watch service for works within river and tidal areas.

9.9 Monitoring

9.9.1 The contractor will consult with SEPA regarding water quality monitoring to be undertaken for watercourses that will be affected by construction works or discharge of surface water run-off, which will include the following, as appropriate:

- Pre-construction monitoring to establish baseline water quality conditions for watercourses.
- Monitoring during construction works to enable the effectiveness of mitigation measures to limit pollution risk to be monitored and any pollution incidents to be identified.
- Monitoring of watercourses receiving surface water run during construction to enable the effectiveness of treatment and other SUDS measures to be determined.

9.9.2 The contractor will carry out appropriate monitoring to identify:

- pollution risks that are unacceptably high;
- spillages and leakages;
- non-compliance with the CoCP; and
- suspected pollution incidences.

9.9.3 The contractor will take appropriate actions where risks are unacceptably high, where there is noncompliance with the CoCP, where spillages and leakages are unacceptable or where there are any suspected pollution incidences. Please also refer to Section 14 of this CoCP regarding Pollution Incident Response Planning.

9.9.4 The contractor will undertake ground water monitoring at St Margaret's Marsh, and any other ground water sensitive areas, as required, to inform the design of the Project and development of construction methods to mitigate potential impacts on the ground water regime at the marsh.

9.9.5 The contractor will describe the monitoring procedures in the Surface Water and Groundwater Management Plan. The contractor will also consult with SEPA regarding the Pollution Incident Response Plan which will set out the measures to be implemented to address any adverse findings from the monitoring procedures during and following completion of construction works set out above.

9.10 References

- BS 6031:1981 Code of Practice for Earthworks, British Standards Institution
- CIRIA C648 Control of water pollution from linear construction projects, 2006
- CIRIA C532 Control of water pollution from construction sites. Guidance for consultants and contractors, 2001
- CIRIA C697 The SUDS Manual, 2007
- CIRIA C698 Site Handbook for the Construction of SUDS, 2007
- Code of Practice for Installers, Owners and Operators of Underground Storage Tanks (& Pipelines), Scottish Environment Protection Agency, 2006

- Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods, Scottish Environment Protection Agency, 2009
- Food and Environment Protection Act 1985
- PPG 1: General Guide to prevention of pollution, Scottish Environment Protection Agency
- PPG 2: Above ground oil storage tanks, Scottish Environment Protection Agency
- PPG 3: Use and design of oil separators in surface water drainage systems, Scottish Environment Protection Agency
- PPG 4: Treatment and disposal of sewage where no foul sewer is available, Scottish Environment Protection Agency
- PPG 5: Works and maintenance in or near water, Scottish Environment Protection Agency
- PPG 6: Working at construction and demolition sites, Scottish Environment Protection Agency
- PPG 7: Refuelling facilities, Scottish Environment Protection Agency
- PPG 8: Safe storage and disposal of used oils, Scottish Environment Protection Agency
- PPG 13: Vehicle washing and cleaning, Scottish Environment Protection Agency
- PPG 14: Marinas and craft, Scottish Environment Protection Agency
- PPG 18: Managing fire water and major spillages, Scottish Environment Protection Agency
- PPG 20: Dewatering underground ducts and chambers, Scottish Environment Protection Agency
- PPG 21: Pollution Incident Response Planning, Scottish Environment Protection Agency
- PPG 22: Dealing with spillages on highways, Scottish Environment Protection Agency
- PPG 26: Storage and handling of drums and intermediate bulk containers, Scottish Environment Protection Agency
- The Water Environment (Controlled Activities) (Scotland) Regulations 2005, as amended
- The Water Environment (Controlled Activities) (Scotland) Regulations 2005: A Practical Guide, Scottish Environment Protection Agency
- The Water Environment (Oil Storage) (Scotland) Regulations 2006
- Water Environment and Water Services (Scotland) Act 2003

10 Ecology

10.1 Objective

10.1.1 To carry out construction works in such a way as to avoid unnecessary impacts to valuable habitats and species, or to control and limit construction impacts in line with the Environmental Statement and in the case of the Special Protection Areas and Special Areas of Conservation the Appropriate Assessments, through development of appropriate working methods and implementation of appropriate mitigation measures.

10.2 Ecological Management Plan

10.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include an Ecological Management Plan which will include details of procedures to be followed to mitigate environmental impacts due to construction on ecological resources, flora and fauna.

10.2.2 The Ecological Management Plan will include measures to be implemented relating to the following:

- Designated sites including Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI).
- Protected species.
- Control of invasive and alien species.
- Protection of mature trees.
- Tree replacement.
- Monitoring procedures.

10.2.3 The Ecological Management Plan will include the following, as appropriate:

- A summary of all known areas of nature conservation interest which may be affected due to construction.
- Maps showing the locations of all known areas of nature conservation interest which may be affected due to construction, including access routes.
- Details of proposed protection measures to avoid any unnecessary encroachment into adjoining areas of nature conservation interest.
- Details of measures proposed to mitigate potential impacts on areas of nature conservation interest due to construction.
- A programme for undertaking ecological survey works prior to and during construction to verify the baseline ecological conditions disclosed in the Environmental Statement and undertake appropriate monitoring during construction.
- Details of any restrictions on the timing of construction works and construction methods to protect species or areas of nature conservation interest.
- Details of appropriate watching briefs to be implemented during construction works.

- Procedures to be implemented in relation to relocation or translocation of species.
 - Procedures to be adopted in the event of unanticipated discovery or disturbance of protected species or important habitats.
 - Reinstatement procedures to be implemented for any areas of temporary habitat loss.
 - Reference to the relevant procedures in the Pollution Incident Response Plan to be implemented in the event of a pollution incident on or adjacent to a designated nature conservation site.
- 10.2.4 Relevant information, including the information outlined above will be included in individual Species or Habitat Management Plans which the contractor will prepare and which will form part of the Ecological Management Plan. Species or Habitat Management Plans will be prepared for the following:
- Terrestrial habitats.
 - Aquatic/estuarine habitats.
 - European Protected Species (cetaceans, great crested newt, otter and bats).
 - Badger.
 - Breeding birds.
 - Freshwater fish, including migratory species.
- 10.2.5 The contractor will seek to reduce any habitat loss within the land provided for the Project by keeping the working area to the minimum necessary for construction of the Project.
- 10.2.6 Where appropriate, the contractor will mitigate the loss of ecologically important habitats through habitat creation to replace lost areas. Where replacement planting is provided, this mitigation will be integrated with landscape planting, as appropriate, and use native species of local provenance. See also Section 13 of this CoCP.
- 10.2.7 The contractor will have regard to the requirements of Sections 5, 6 and 9 of this CoCP relating to noise and vibration, dust and air quality, and protection of the water environment, respectively, to protect areas of ecologically important habitats and species adjacent to the construction site.
- 10.2.8 The Ecological Management Plan will set out any specific measures necessary to comply with relevant legislation, including the:
- Wildlife and Countryside Act 1981, as amended;
 - Nature Conservation (Scotland) Act 2004;
 - Conservation (Natural Habitats, & c.) Regulations 1994, as amended;
 - Food and Environment Protection Act 1985;
 - Protection of Badgers Act 1992;
 - Environmental Protection Act 1990;
 - Wild Mammals (Protection) Act 1996; and
 - Salmon and Freshwater Fisheries Act 1975.

- 10.2.9 The information set out in the Ecological Management Plan in relation to the above will include a description of the procedures to be implemented to comply with any licensing requirements.
- 10.2.10 The contractor will consult with SNH, SEPA and Marine Scotland, as appropriate, regarding preparation of the Ecological Management Plan.
- 10.2.11 The contractor will provide an Ecological Clerk of Works who will be responsible for implementation of the Ecological Management Plan.

10.3 Protected Habitats and Species

- 10.3.1 As explained in Section 1.9 of this CoCP, Reports to Inform an Appropriate Assessment (RIAAs) have been prepared in relation to the following sites:
- Firth of Forth Special Protection Area (SPA).
 - Forth Islands SPA.
 - Imperial Dock Lock SPA (contained within the Forth Islands RIAA).
 - River Teith SAC.
- 10.3.2 The contractor will comply with the provisions of the Environmental Statement and the RIAAs in relation to these sites, and any other conditions or restrictions imposed by the Competent Authority in relation to the Appropriate Assessments carried out for the Project insofar as they relate to these sites (refer also to the provisions of paragraphs 1.9.5 and 1.9.6).
- 10.3.3 The Environmental Statement also identifies potential impacts on the following Sites of Special Scientific Interest (SSSI):
- St Margaret's Marsh SSSI.
 - Ferry Hills SSSI.
 - Firth of Forth SSSI.
- 10.3.4 The contractor will comply with the provisions of the Environmental Statement in relation to these sites.
- 10.3.5 In accordance with the mitigation and other measures set out in the Environmental Statement and the RIAAs, the contractor will undertake surveys in advance of construction works being undertaken to identify protected species and will ensure that exclusion zones in line with best practice and which are appropriate considering the nature of the construction works to be undertaken are maintained. In preparing their method of construction work the contractors will take cognisance of the requirements set out in the Environmental Statement and the RIAAs. In the event that their proposed method (a) differs from the method assessed in and recommended by the Environmental Statement and the RIAAs and (b) in the view of the Ecological Clerk of Works, has the potential to significantly affect protected habitats and/or species, the contractor will consult with relevant bodies, including SNH, prior to work commencing regarding the need or otherwise for an Appropriate Assessment and/or additional and/or amended mitigation measures.

- 10.3.6 The contractor will obtain and comply with the requirements of any protected species licences necessary for construction of the Project. Licences may include those in relation to the following:
- European Protected Species derogation licences – in respect of any works likely to breach the Conservation (Natural Habitats &c) Regulations 1994. Species potentially requiring a derogation licence include cetaceans, great crested newt, otter and bats.
 - Badger development licences - in respect of any works likely to result in the disturbance, damage or destruction of a badger sett.
- 10.3.7 The programming of construction works will take cognisance of the requirements set out in the Environmental Statement and RIAAs. In particular, the timing of construction works will be undertaken with due regard to the following:
- Site clearance works – to mitigate potential impacts on terrestrial breeding birds.
 - Works within watercourses – to mitigate potential impacts on migratory fish.
 - Foundation construction associated with the main crossing or the approach viaducts within the Firth of Forth – to mitigate potential impacts on fish, marine mammals and birds. See also paragraph 10.3.8 below.
- 10.3.8 Construction of the foundations associated with the main crossing and approach viaducts within the Firth of Forth will be undertaken in line with the requirements of the Environmental Statement and RIAAs to mitigate the potential effects on fish, marine mammals and birds, including impacts associated with the following:
- Noise and vibration due to piling and blasting works.
 - Habitat loss due to piling and dredging works, including the disposal of dredgings.
 - Release of sediment, including any contamination, due to construction works.
 - Chemical spills due to construction works.
 - Light pollution due to temporary lighting.
 - Disturbance from increased traffic/vessels.
- 10.3.9 The contractor will provide a trained Marine Mammal Observer (MMO) during piling and blasting works to facilitate compliance with the requirements of this CoCP.

10.4 Control of Invasive and Alien Species

- 10.4.1 The contractor will describe within the Ecological Management Plan the strategy to be implemented for the appropriate treatment of invasive alien species, including, as appropriate:
- Japanese knotweed (*Fallopia japonica*); and
 - giant hogweed (*Heracleum mantegazzianum*).
- 10.4.2 The strategy will set out appropriate construction, handling, treatment and disposal procedures in relation to these and any other species listed in Schedule 9, Part II of

the Wildlife and Countryside Act 1981, as amended, or the Weeds Act 1959 to prevent the spread of such species. Appropriate measures will also be set out to control other invasive species such as Himalayan balsam (*Impatiens glandulifera*) in line with recognised best practice.

- 10.4.3 Vessels involved in the construction activities for the FRC will operate in accordance with industry recommended guidelines for preventing the introduction of non-native marine species. UKMarineSAC (2009) recommends that vessels comply with International Maritime Organisation guidance wherever possible, seek guidance from the relevant navigation or harbour authorities port authority regarding areas where ballast water uptake should be avoided (e.g. near sewage outfalls), encourage the exchange of ballast water in the open ocean, and discourage/prohibit the unnecessary discharge of ballast water in port and harbour areas.

10.5 Protection of Trees

- 10.5.1 The contractor will employ an arboricultural consultant to oversee works relating to the protection of trees.
- 10.5.2 The contractor will protect trees in line with the recommendations in BS 5837 Trees in Relation to Construction. Trees will be considered to be those covered by BS 5837 with stem diameter greater than 75mm measured at 1.5m above ground level. Such trees to be protected will be identified by the contractor's arboricultural consultant.
- 10.5.3 The Ecological Management Plan will set out measures to be implemented, including the following, as appropriate:
- Provision of appropriate protective fencing to reduce the risks associated with vehicles trafficking over root systems or beneath canopies.
 - Measures to prevent compression of soils.
 - Maintenance of vegetation buffer strips, where practicable.
 - Procedures for the selective removal of lower branches to reduce the risk of damage by construction plant and vehicles.
- 10.5.4 Any tree surgery operations will comply with the recommendations in BS 3998 Recommendations for Tree Works, as appropriate.
- 10.5.5 Tree felling will be carried out taking appropriate consideration of the Forestry Commission's Forest and Water Guidelines 2003 to mitigate risks from felling areas of woodland and trees on the freshwater environment. Where there are no windthrow or landscape visual issues, tree felling will be reduced to that necessary to allow the safe construction and operation of the proposed scheme. Any tree felling operations must consider the legal protection given to roosting bats and breeding birds.
- 10.5.6 Tree felling within land authorised by the Forth Crossing Bill will not require any secondary consent. Any tree felling in land outside the extents of the Bill which is occupied with the agreement of the relevant landowner will require consent in accordance with Forestry Act 1967. The contractor will obtain any consents necessary in this regard.

10.6 Tree Planting and Replacement

- 10.6.1 Any trees intended to be retained which are felled or die as a consequence of construction works will be replaced. Where reasonably practicable, the size and species of replacement trees will be selected to achieve a close resemblance of the original trees most effectively using locally occurring native species of local provenance and taking cognisance of any management plans for immediately adjacent areas of woodland.
- 10.6.2 The supply, storage, handling, planting and maintenance of new planting will be undertaken in accordance with appropriate British Standards, including BS 5837 Trees in relation to construction; BS 3998 Recommendations for Tree Works and BS 4428 Code of Practice for General Landscape Operations (excluding hard surfaces) and other guidance including the UK Forestry Standard and the UKWAS Standard.

10.7 Monitoring

- 10.7.1 The contractor will consult with relevant authorities including the Scottish Ministers, SNH, local authorities and the Forestry Commission regarding monitoring and survey works to be undertaken prior to construction to verify the baseline ecological and arboricultural conditions set out in the Environmental Statement, including agreeing a suitable handover from the Scottish Ministers for any ongoing monitoring and survey works being undertaken by them. The survey works will be planned to provide sufficient baseline data to inform the development of appropriate construction programmes, methods and mitigation measures which will be set out in the Ecological Management Plan.
- 10.7.2 The contractor will undertake appropriate monitoring of construction works and implementation of mitigation measures, including those relating to noise and vibration associated with works which may affect the SPAs, SAC and SSSIs, as appropriate.
- 10.7.3 The contractor will undertake appropriate monitoring during construction to enable the effectiveness of construction methods and mitigation measures to be identified.

10.8 References

- Bats and Lighting in the UK, Bat Conservation Trust, 2008
- BS 3998:1989 Recommendations for Tree Works, British Standards Institution
- BS 4428:1989 Code of Practice for General Landscape Operations (excluding hard surfaces), British Standards Institution
- BS 5489:2003 Code of Practice for the Design of Road Lighting, British Standards Institution
- BS 5837:2005 Trees in Relation to Construction, British Standards Institution
- BS EN 14011:2003 Water quality – Sampling of fish with electricity, British Standards Institution
- Environmental Protection Act 1990, as amended
- Food and Environment Protection Act 1985
- Forest and Water Guidelines 2003, Forestry Commission

- Forestry Act 1967
- Guidelines for minimising acoustic disturbance to marine mammals from seismic surveys, JNCC, 2004
- Mitigating Against Effects on Badgers, Highways Agency, 1997
- Nature Conservation Advice in Relation to Bats, Highways Agency 1999
- Nature Conservation Advice in Relation to Otters, Highways Agency, 1999
- Nature Conservation (Scotland) Act 2004
- PPG 1: General Guide to prevention of pollution, Scottish Environment Protection Agency
- PPG 3: Use and design of oil separators in surface water drainage systems, Scottish Environment Protection Agency
- PPG 5: Works and maintenance in or near water, Scottish Environment Protection Agency
- PPG 6: Working at construction and demolition sites, Scottish Environment Protection Agency
- PPG 21: Pollution Incident Response Planning, Scottish Environment Protection Agency
- Protection of Badgers Act 1992
- Salmon and Freshwater Fisheries Act 1975
- St Margaret's Marsh SSSI, Ferry Hills SSSI and Firth of Forth SSSI (available on SNH SiteLink at <http://www.snh.org.uk/snhi/>)
- Summary of the possible effects of wastes managed within ports and harbours and suggestions for means of avoiding, minimising and addressing them. UKMarineSAC, 2009, available at:
http://www.ukmarinesac.org.uk/activities/ports/ph6_4.htm
- The Conservation (Natural Habitats, & c.) Regulations 1994, as amended
- The UK Forestry Standard, The Government's Approach to Sustainable Forestry, Forestry Commission, 2004
- United Kingdom Woodland Assurance (UKWAS) Standard, Second Edition (Amended November 2008)
- Weeds Act 1959
- Wild Mammals (Protection) Act 1996
- Wildlife and Countryside Act 1981, as amended

11 Agricultural Resources

11.1 Objective

- 11.1.1 To carry out the works in such a way to protect good quality agricultural land from damage and to contain and limit adverse effects on agricultural resources as far as reasonably practicable.

11.2 Agriculture Management Plan

- 11.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include an Agriculture Management Plan which will include details of the controls to be implemented to mitigate potential impacts on farms including maintaining access.

- 11.2.2 The Agriculture Management Plan will include the following, as appropriate:

- Maps showing the farms adjacent to the construction site.
- Maps showing watercourses and, where known, field drainage layouts and outfalls into watercourses or ditches.
- Details of the landowners, occupiers and agents for farms adjacent to the construction site.
- Details of the husbandry associated with the areas of farms adjacent to the construction site.
- Procedures to be adopted for the appropriate protection of agricultural land adjacent to the construction site, including information regarding appropriate stock-proof fencing to be provided and maintained.
- Procedures to be adopted to undertake survey works to record the condition of existing agricultural land which may be used temporarily during construction, including agricultural land quality and land drainage, as appropriate. See also Section 3.6 of this CoCP.
- Procedures to be adopted for the reinstatement of any agricultural land which is used temporarily during construction.
- A programme indicating when temporary occupation of agricultural land will be taken and when any agricultural land used temporarily is intended to be returned to agricultural use.
- Procedures to be adopted in relation to the provision of accommodation works including a programme for the provision of accommodation works.
- Details of accesses which may be affected by construction, including the procedures to be implemented to maintain access. See also Section 4.4 of this CoCP.
- Procedures to be followed in relation to the stripping, handling, storage and replacement of topsoil on areas of land to be returned to agricultural use following construction.

- 11.2.3 The contractor will consult with the Scottish Government Rural Payments and Inspections Directorate (formerly the Scottish Executive Environment and Rural Affairs Department (SEERAD)) regarding the preparation of the Agriculture Management Plan.

11.2.4 The contractor will appoint a liaison officer who will be responsible for liaising with affected landowners, occupiers and agents, as appropriate. See also Section 2 of this CoCP.

11.2.5 The contractor will advise landowners, occupiers and agents, as appropriate, regarding the intended commencement of construction works in areas of the site adjacent to agricultural holdings. The contractor will also liaise with landowners, occupiers and agents, as appropriate, regarding the provision of accommodation works to agree the programme of works and access routes to be used. The contractor will develop the construction programme to reduce disturbance, without detriment to the overall programme for completion of the project.

11.3 Mitigation of Potential Impacts on Agricultural Resources

11.3.1 The contractor will consult with, and implement appropriate measures in accordance with guidance produced by, the Scottish Government Rural Payments and Inspections Directorate in relation to undertaking works on or adjacent to agricultural land. Relevant guidance covering measures associated with soils erosion, soil organic matter, soil structure and minimum level of maintenance includes:

- the code of good practice – Prevention of Environmental Pollution from Agricultural Activity (commonly known as the PEPFAA Code);
- Good Agricultural and Environmental Condition measures for Scotland (GAEC); and
- the Scottish Soil Framework Consultation Document.

11.3.2 The contractor will also implement appropriate measures in accordance with the Code of Good Agricultural Practice – Protecting our Water, Soil and Air in 2009 published by the Department for Environment, Food and Rural Affairs (DEFRA).

11.3.3 Prior to works commencing on agricultural land which will be used temporarily or land which will be returned to agricultural use following construction, the contractor will undertake surveys to record the existing quality of land, including the condition of the following, as appropriate:

- Topsoil and subsoil.
- Drainage.
- Roads, accesses and paths.
- Forestry.
- Agricultural land adjacent to the construction site.

11.3.4 The contractor will implement appropriate procedures in relation to the stripping, handling, storage and replacement of agricultural soils to mitigate risks associated with soil degradation. The contractor will undertake reinstatement of land used temporarily for construction in accordance with the requirements of the Forth Crossing Bill. See also the requirements of Section 3.6 of this CoCP in relation to the land to be used for construction, including provision of appropriate fencing to maintain the security of the site.

11.3.5 The contractor will implement appropriate measures in relation to storage of agricultural soils, including the following, as appropriate:

- Handling and storing different soils separately, particularly top soils and sub soils.
- Taking appropriate measures to prevent contamination of soils with chemicals or other materials.
- Undertaking turf cutting in dry weather and ground conditions, where reasonably practicable to avoid damaging the soil through compaction or loss of soil by erosion.

11.3.6 The contractor will comply with the requirements of Section 6 of this CoCP relating to handling and storage of material and Section 9 of this CoCP in relation to control of run-off insofar as they are applicable to protecting agricultural soils.

11.3.7 The contractor will implement appropriate measures in the design and construction of the Project to identify, protect and maintain existing land drainage systems.

11.3.8 The contractor will comply with the requirements of Section 10.4 of this CoCP in relation to measures to prevent the spread of invasive and alien species.

11.3.9 The contractor will comply with the requirements of the Scottish Government Rural Payments and Inspections Directorate and appropriate guidance to avoid, as far as possible, the spread of soil borne, crop and animal diseases. The contractor will implement appropriate measures, such as those described in Section 9 of this CoCP, will to control run-off to reduce any risks associated with disease transmission.

11.3.10 The contractor will implement appropriate measures to identify locations of carcass burial sites within the construction site to mitigate risks associated with the existence of any unrecorded sites.

11.3.11 The contractor will liaise with landowners, occupiers and agents, as appropriate, to establish requirements and measures to be implemented to maintain livestock water supplies which may be affected due to construction works.

11.4 Monitoring

11.4.1 The contractor will implement monitoring procedures in accordance with the requirements of Section 6 of the CoCP relating to storage of materials and Section 9 of this CoCP in relation to protection of the water environment, as appropriate.

11.4.2 The contractor will ensure that the Landscape Clerk of Works (see Section 13 of this CoCP) monitors topsoil stripping, handling and storage as appropriate to facilitate compliance with the this section of the CoCP in relation to agricultural soils.

11.4.3 The contractor will undertake monitoring as necessary to maintain security of the site as required to comply with Section 3.6 of this CoCP.

11.5 References

- Code of Good Agricultural Practice for farmers, growers and land managers – Protecting our Water, Soil and Air, Department for Environment Food and Rural Affairs, 2009
- Code of Good Practice – Prevention of Environmental Pollution from Agricultural Activity, The Scottish Executive, 2005

- Cross Compliance Notes for Guidance. (Incorporating Good Agricultural and Environmental Condition), The Scottish Executive, 2005
- Environmental Protection Act 1990, as amended
- Farm Soils Plan, Protecting soils and income in Scotland, The Scottish Executive, 2005
- Scottish Planning Policy 15 [SPP15] Planning for Rural Development
- The Scottish Soil Framework. A Consultation Document, The Scottish Government, 2008
- Wildlife and Countryside Act 1981, as amended

12 Archaeology and Cultural Heritage

12.1 Objective

12.1.1 To carry out the works in such a way as to prevent, so far as is reasonably practicable, disturbance or damage to built heritage including Listed Buildings, Scheduled Ancient Monuments and other sites of archaeological interest as defined in relevant legislation and the Environmental Statement.

12.2 Cultural Heritage Management Plan

12.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Cultural Heritage Management Plan which will include details of the measures to be implemented during topsoil stripping and excavations to enable potential cultural heritage resources to be identified, excavated recorded and potentially published as well as controls to be put in place to protect cultural heritage resources adjacent to the construction works.

12.2.2 The Cultural Heritage Management Plan will include the following, as appropriate:

- A description, including maps showing the locations, of all known sites of archaeological or cultural heritage interest and conservation areas within and adjacent to the construction site.
- Details of the measures to be implemented at each site to prevent damage by the movement of construction vehicles and machinery.
- Procedures to be adopted during topsoil stripping, including a watching brief to be implemented by an archaeological clerk of works (see paragraph 12.2.3 below).
- Procedures to be adopted in the event of an unanticipated discovery or disturbance of archaeological remains.
- Procedures to be adopted in the event of emergency work to any sites of archaeological or cultural heritage interest.
- Procedures to be adopted to protect archaeological remains in situ beneath earthworks where that has been agreed with Historic Scotland as an appropriate mitigation measure.
- Procedures for the dismantling and re-erection of any buildings of cultural heritage interest.
- archaeological monitoring procedures to be implemented at any sites of archaeological or cultural heritage interest adjacent to the construction site during construction.

12.2.3 The contractor will provide an Archaeological Clerk of Works who will be responsible for implementation of the Cultural Heritage Management Plan.

12.2.4 The contractor will consult with Historic Scotland regarding preparation of the Cultural Heritage Management Plan.

12.3 Mitigation of Potential Impacts on Archaeological or Cultural Heritage Resources

- 12.3.1 The contractor will provide appropriate fencing and hoarding as may be necessary to protect sites of archaeological or cultural heritage interest within or adjacent to the construction site, including unknown sites discovered during construction. See also Section 3.6 and Section 6 of this CoCP.
- 12.3.2 If archaeological investigations or works to protect listed buildings are required on land which is to be occupied temporarily or land adjacent to the construction site, the owners and occupiers of that land will be consulted in advance of the works being undertaken and entry to land taken in accordance with paragraph 3.6.2 of this CoCP.
- 12.3.3 The contractor will implement appropriate watching briefs and archaeological monitoring during construction works adjacent to sites of archaeological or cultural heritage interest and during topsoil stripping.
- 12.3.4 The contractor will consult with Historic Scotland should any archaeological or cultural heritage finds or sites be discovered or revealed during construction to enable appropriate measures to be implemented to mitigate potential impacts. Measures to be implemented may include the following, as appropriate:
- Investigation and assessment of the discoveries to determine their significance.
 - Assessing the potential impacts due to the Project to inform the design of appropriate mitigation measures.
 - Excavating, recording and reporting on any discoveries.
 - Recording and taking measures to potentially preserve any discoveries *in situ* if required or appropriate as agreed with Historic Scotland.
- 12.3.5 The contractor will undertake a risk assessment and undertake appropriate structural or dilapidation surveys and vibration monitoring at sites of archaeological or built heritage interest adjacent to the construction site prior to, during and following construction works. The risk assessment will include, but not be limited to, the following buildings:
- St Margaret's Hope, former Admiralty House, Category B listed building.
 - Port Edgar Barracks Category B listed complex.
 - Inchgarvie House Category C(s) listed building.
- 12.3.6 The nature, extent and frequency of monitoring will be appropriate and agreed with Historic Scotland taking into consideration the nature of the planned construction works and proximity of the relevant site. See also Section 5.2 of this CoCP.
- 12.3.7 The contractor will seek to minimise the encroachment of the design and construction of the Project into Hope Street Cemetery, Inverkeithing and will consult with Fife Council Bereavement Services in this regard. The Scottish Ministers will consult with Fife Council Bereavement Services and other relevant authorities to develop a procedure to be implemented in the event that the design or construction of the Project requires exhumation and relocation of any human remains interred within the cemetery. See also section 3.6 of this CoCP.

12.4 Monitoring

- 12.4.1 The monitoring requirements, including those during construction, are set out in Section 12.3 above.

12.5 References

- Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, Institute for Archaeologists, 2008
- Code of Conduct, Institute for Archaeologists, 2008
- Environmental Archaeology and Archaeological Evaluations, Association for Environmental Archaeology, Working Paper No. 2, 1995
- Excavation and post-excavation treatment of cremated and inhumed human remains, McKinley, Jacqueline I and Roberts, Charlotte; Institute of Field Archaeologists Technical Paper No. 13, 1993
- Recording Historic Buildings: A Descriptive Specification, Third Edition, Royal Commission on the Historical Monuments of England, 1993
- Scottish Historic Environment Policy, Historic Scotland, 2008
- Scottish Planning Policy 23 [SPP23] Planning and the Historic Environment
- Standard and Guidance for an Archaeological Watching Brief, Institute for Archaeologists, 2008
- Standard and Guidance for Archaeological Desk Based Assessments, Institute for Archaeologists, 2008
- Standard and Guidance for Archaeological Excavation, Institute for Archaeologists, 2008
- Standard and Guidance for Archaeological Field Evaluation, Institute for Archaeologists, 2008
- Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures, Institute for Archaeologists, 2008
- Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Material, Institute for Archaeologists, 2008
- The Law and Burial Archaeology, Garratt-Frost, Stephen 1992; Institute of Field Archaeologists Technical Paper No. 11, 1992

13 Landscape and Visual

13.1 Objective

- 13.1.1 To carry out construction works so that disturbance to the landscape is contained within the construction site in order to protect existing landscape elements such as soils, woodland, trees, hedges, grassland and other habitat.

13.2 Landscape Management Plan

- 13.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Landscape Management Plan which will include details of the controls to protect the landscape from construction activities together with measures to be implemented to manage and maintain landscape works provided as part of the Project. Measures to be implemented to mitigate visual impacts from the construction works will also be described.

- 13.2.2 The Landscape Management Plan will include the following, as appropriate:

- Maps showing areas of existing trees and vegetation within the construction site to be retained.
- A schedule of plant species and planting mixes to be used and measures to be implemented to provide sufficient stock of specified species and provenance, including details of plant suppliers to be used.
- A programme for undertaking planting works.
- Measures to be implemented to protect new planting.
- Procedures for the inspection, maintenance and management of planting.
- Details of the measures to be implemented to prevent damage to the landscape adjacent to the construction site by the movement of construction vehicles and machinery.
- Procedures for the identification, removal, handling, storage and transplanting of any vegetation which is to be imported, reused, relocated or transplanted.
- Reference to relevant procedures set out in the management plans for other construction activities insofar as they are relevant for the protection of the landscape.
- Reference to the Pollution Incident Response Plan for emergency procedures to be implemented in the event of a pollution incident.

- 13.2.3 The contractor will provide a Landscape Clerk of Works who will be responsible for implementation of the Landscape Management Plan.

- 13.2.4 The contractor will consult with SNH and relevant local authorities, as appropriate, regarding preparation of the Landscape Management Plan.

13.3 Mitigation of Potential Impacts on the Landscape or Landscape Resources

- 13.3.1 The contractor will endeavour to put in place planting and other landscape measures as early as is reasonably practicable where there is no conflict with the construction activities or other requirements of the Project.
- 13.3.2 Access to the construction site will be controlled in accordance with the requirements of Section 4.6 of this CoCP. The contractor will have regard to potential impacts on trees or other mature vegetation when positioning site access and egress points and will seek to avoid unnecessary impact.
- 13.3.3 If damage occurs to the landscape adjacent to the construction site, the contractor will consult with the owners and occupiers of the land in advance of taking entry to the land to undertake any remedial works. Entry to land will be taken in accordance with paragraph 3.6.2 of this CoCP.
- 13.3.4 The procedures developed by the contractor in management plans for other construction activities will take consideration of the objective to protect the landscape and landscape resources. Relevant procedures will be set out in the following subsidiary management plans, as appropriate:
- Area Management Plan.
 - Dust and Air Pollution Management Plan.
 - Geology, Land Contamination and Waste Management Plan.
 - Surface and Ground Water Management Plan.
 - Ecological Management Plan.
 - Agriculture Management Plan.
 - Cultural Heritage Management Plan.
 - Pollution Incident Response Plan.
- 13.3.5 The procedures set out in Section 11.3 of this CoCP relating to the temporary use of agricultural land will apply equally in relation to the use of other categories of land used temporarily during construction.
- 13.3.6 The contractor will provide appropriate mitigation to reduce landscape, visual and other environmental impacts associated with temporary site offices and compounds. See also Sections 3.5 – 3.11 of this CoCP regarding operation and management of the construction site.
- 13.3.7 The procedures set out in Section 11.3 of this CoCP relating to the handling of agricultural soils will apply equally in relation to soils to be used in areas to be seeded or planted. The sourcing, testing, stripping, handling, storage and spreading of site-won and imported topsoil will comply with BS 6031 Code of practice for earthworks.
- 13.3.8 The contractor will comply with the requirements of Section 10.4 of this CoCP in relation to measures to prevent the spread of invasive and alien species.
- 13.3.9 The contractor will avoid unnecessary tree and vegetation removal and will protect existing trees in accordance with BS 5837 Trees in relation to construction.

- 13.3.10 The contractor will undertake the procurement, movement, handling, storage, planting and maintenance of plant material in accordance with the following standards, as appropriate:
- BS 3936-1 Nursery stock. Specification for trees and shrubs.
 - BS 3936-4 Nursery stock. Specification for forest trees, poplars and willows.
- 13.3.11 The contractor will comply with the requirements of Section 10.4 of this CoCP regarding the protection of trees and Section 10.5 of this CoCP regarding tree planting and replacement.
- 13.3.12 The contractor will consult with SNH, relevant local authorities, the airport operator of Edinburgh Airport, community councils and adjacent landowners, as appropriate, regarding the landscaping and planting proposals.

13.4 Monitoring

- 13.4.1 The Landscape Management Plan will describe the inspection and monitoring procedures to be implemented during construction of the Project to monitor the effectiveness of measures to protect the landscape.
- 13.4.2 The contractor will undertake appropriate inspection, monitoring and maintenance of landscaping and planting provided as part of the Project to facilitate the effective establishment of vegetation and record the effectiveness of landscaping proposals.

13.5 References

- BS 3936-1:1992 Nursery stock. Specification for trees and shrubs, British Standards Institution
- BS 3936-4:1984 Nursery stock. Specification for forest trees, poplars and willows, British Standards Institution
- BS 3998:1989 Recommendations for Tree Works, British Standards Institution
- BS 5837:2005 Trees in Relation to Construction, British Standards Institution
- BS 6031:1981 Code of Practice for Earthworks, British Standards Institution
- Wildlife and Countryside Act 1981, as amended

14 Pollution Incident Control and Response Planning

14.1 Objective

14.1.1 To carry out the works in such a way as to avoid pollution incidents; however should any occur, procedures and measures will be implemented to contain, limit and mitigate the effects as far as reasonably practicable.

14.2 Pollution Incident Response Plan

14.2.1 As explained in Section 1.5 of this CoCP, the contractor's EMP will include a Pollution Incident Response Plan which will include details of controls to be adopted to manage the risk of pollution incidents and procedures to be followed in the event of any pollution incidents.

14.2.2 The Pollution Incident Response Plan will include the following, as appropriate:

- Reference to the management plans for other construction activities insofar as they are relevant for the purposes of mitigating against pollution incidents.
- Procedures to be adopted to contain, limit and mitigate any adverse effects, as far as reasonably practicable, in the event of a pollution incident.
- Details of spill clean-up companies appropriate to deal with pollution incidents associated with the materials being used or stored on site.
- Procedures to be followed and appropriate information to be provided in the event of any incident such as a spillage or release of a potentially hazardous material.
- Procedures for notifying appropriate emergency services, authorities the Employer's Representative and personnel on the construction site.
- Procedures for notifying relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required.
- Procedures for notifying persons or owners and occupiers of property affected by any pollution incident as soon as possible after the incident occurring, including notification of the actions which will be, or are being taken, to address the effects of the incident.
- Maps showing the locations, together with address and contact details, of local emergency services facilities such as police stations, fire authorities, medical facilities and other relevant authorities.
- Contact details for the persons responsible on the construction site and within the contractor's organisation for pollution incident response.

14.2.3 The Pollution Incident Response Plan will also be prepared in accordance with PPG 21 Pollution Incident Response Planning.

14.2.4 The contractor will consult with relevant organisations including emergency services, statutory bodies, environmental regulatory authorities, local authorities, local water and sewer providers and the Health and Safety Executive regarding development of the Pollution Incident Response Plan.

14.3 Pollution Prevention Measures

- 14.3.1 The contractor will implement appropriate measures to limit, as far as reasonably practicable, the risk of pollution due to construction works and materials. Such measures will be set out in the subsidiary management plans required by this CoCP for other construction activities, including the:
- Area Management Plan;
 - Noise and Vibration Management Plan;
 - Dust and Air Pollution Management Plan;
 - Geology, Land Contamination and Waste Management Plan; and
 - Surface and Ground Water Management Plan.
- 14.3.2 Pollution Prevention Guidelines are referred to in other sections of this CoCP. In particular, the contractor will note and comply with the guidelines contained in:
- PPG 18: Managing fire water and major spillages;
 - PPG 22: Dealing with spillages on highways; and
 - PPG 26: Storage and handling of drums and intermediate bulk containers.
- 14.3.3 The contractor will be responsible for compliance with the Environmental Liability (Scotland) Regulations 2009 regarding any imminent threat of environmental damage (as defined in the regulations), and will take appropriate actions that may be necessary as a consequence of construction works, as required by the regulations.

14.4 Monitoring

- 14.4.1 The contractor will investigate and provide reports on any pollution incidents to the Employer's Representative, including, as appropriate:
- A description of the pollution incident.
 - Contributory causes.
 - Adverse effects.
 - Measures implemented to mitigate adverse effects.
 - Effectiveness of measures implemented to prevent pollution incidents.
- 14.4.2 The contractor will undertake appropriate monitoring of the procedures and measures set out in the management plans for construction activities required by this CoCP to prevent pollution incidents to ensure they are being adequately implemented.
- 14.4.3 The contractor will monitor the effectiveness of the procedures and measures implemented to prevent pollution incidents and the effectiveness of the response procedures set out in the Pollution Incident Response Plan to identify any areas where improvement is required to comply with the requirements of this CoCP.

14.5 References

- Control of Pollution Act 1974
- Environmental Liability (Scotland) Regulations 2009
- Environmental Protection Act 1990, as amended
- Health and Safety at Work etc Act 1974
- Pollution Prevention and Control Act 1999
- Pollution Prevention and Control (Scotland) Regulations 2000, as amended
- PPG 18: Managing fire water and major spillages, Scottish Environment Protection Agency
- PPG 21: Pollution Incident Response Planning, Scottish Environment Protection Agency
- PPG 22: Dealing with spillages on highways, Scottish Environment Protection Agency
- PPG 26: Storage and handling of drums and intermediate bulk containers, Scottish Environment Protection Agency
- The Water Environment (Controlled Activities) (Scotland) Regulations 2005
- The Water Environment (Controlled Activities) (Scotland) Regulations 2005: A Practical Guide, Scottish Environment Protection Agency
- Water Environment and Water Services (Scotland) Act 2003